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An Index to the Sixty-sixth Volume of THE RAILWAY GAZETTE *covering the issues from January 1 to June 25, 1937, is presented as a Supplement to each copy of this week's issue.*

The Wedgwood Report on Indian Railways

THE report of Sir Ralph Wedgwood's Committee on the State-managed railways of India, a summary of which we publish this week, is a remarkable document. It brings into relief, at a very opportune moment, the leading features of a complicated question. The problem, like that of most other railway systems is a financial one and in the same way as elsewhere it has been further complicated by the advent of a formidable competitor in the shape of road transport. It is to be hoped that the very plain recommendations of the Wedgwood Committee will lead to the emancipation of the railways, financially speaking, from the oppressive tutelage of the State. Let the railways stand alone, with due legal regulation of the present unbridled road competition, and the report shows that they are as well able as railways in other countries to hold their own. But there must be greater independence and relief from the meticulous intervention of the Government. Internally there must be improvements in discipline and in particular honesty in the lower grades, also education of the staff, and greater publicity is necessary. Meanwhile amalgamations of railways offer no solution and, rather than an extension of the present system of State management the committee would, if it seemed possible, prefer to consider a reversion to private management. Either way the railways should be entirely independent financially of the Government of India. The great responsibility which will rest on the Federal Railway Board may well be lightened by this excellent report.

* * * *

What Is Economy?

We receive frequent notices from the Engineers' Study Group on Economics which indicate that it is a very active concern. It arranges meetings addressed by eminent persons, such as that on June 7 at which, under the chairmanship of Sir Richard Gregory, F.R.S., the Rt. Hon. Arthur Greenwood, M.P., spoke on "Labour's Ten-Point Programme." The group is divided into several sections for study and research work, and reports are issued from time to time, such as that on "The Family Budget" to which we referred in our issue of March 13, 1936. We understand that data are being prepared covering such matters as the production and consumption of electricity for various industries; circulation of money; and money and banking. What we are not yet clear about, however, is the objective at which the group is aiming. Why is it studying economics? Economy is a term to which so many meanings are attached nowadays that a precise definition is called for in any particular connection. The business of the engineer is well defined in the articles of association of the Institution of Civil Engineers as "directing the great sources of power in Nature for the use and convenience of man." The engineer could easily provide all the material wants of man for his "use and convenience." It is the purpose of the Study Group in Economics to show, for the benefit of the engineer in particular and mankind in general, what prevents this?

* * * *

The Week's Traffics

A gross increase of £135,000 is shown in the traffic returns of the four main line railway companies for the past week, which compares with an increase of £139,000 for the previous week. Merchandise traffics provide £60,500, coal £51,500, and passenger train takings £23,000 of the improvement for the week, which brings the total receipts for the 25 weeks of the current year to £74,763,000, an increase of £3,328,000, or 4·66 per cent. Passenger train takings to date on the Southern amount to £7,376,000, an increase of £401,000, or 5·75 per cent. Merchandise receipts for the 25 weeks on the L.N.E.R. are £8,460,000, an increase of £368,000, or 4.55 per cent. Coal class traffics to date on the Great Western have reached £2,815,000, an increase of £281,000, or 11·09 per cent. The L.M.S.R. passenger total is £11,461,000, an increase of £446,000, or 4·05 per cent.

	25th Week				Year to date	
	Pass., &c.	Goods, &c.	Coal, &c.	Total	Inc. or Dec.	
	£	£	£	£	£	%
L.M.S.R. ..	+ 1,000	+ 36,000	+16,000	+ 53,000	+1,264,000	+ 4·33
L.N.E.R. ..	+ 3,000	+ 17,000	+18,000	+ 38,000	+1,075,000	+ 5·08
G.W.R. ..	+ 11,000	+ 7,000	+18,000	+ 36,000	+ 650,000	+ 5·48
S.R.	+ 8,000	+ 500	− 500	+ 8,000	+ 339,000	+ 3·64

London Transport receipts for the past week show a decrease of £3,100, but for the 52 weeks there is an improvement of £255,100.

* * * *

Northern Ireland Railways in 1936

A substantial improvement in results for 1936 of railways wholly and partly in Northern Ireland is shown by the figures supplied to us by the Ministry of Commerce. On the railways wholly in Northern Ireland—the Belfast & County Down, Bessbrook & Newry, Carrickfergus Harbour Junction, Clogher Valley, and Northern Counties

(L.M.S.R.)—the net revenue available for appropriation was £28,930, against £2,741 in 1935. Railway working for these companies together showed a loss of £8,347 in 1936, against one of £37,986 in 1935, but profits from the hotels departments of the Belfast & County Down and the Northern Counties reduced this loss in 1936 to £1,172, and the total net income was £27,116. Included in the net income is interest on Northern Ireland Road Transport stock (£1,022 for the Belfast & County Down and £9,131 for the Northern Counties) in respect of road vehicles taken over under the Act of 1935. Passenger train receipts improved from £343,360 to £361,004, and goods train receipts from £180,693 to £195,496. Railways partly in Northern Ireland include the County Donegal; Dundalk, Newry and Greenore; Great Northern; Londonderry & Lough Swilly; and Sligo, Leitrim & Northern Counties. They secured a total net income of £146,494 in 1936, compared with £136,640 in 1935. From railway working the total net receipts were £78,777, the profits of £97,680 on the Great Northern and of £5,743 on the County Donegal being partly offset by losses on the other lines. Passenger train receipts improved from £576,431 to £590,044, and goods train receipts from £557,428 to £569,303.

* * * *

Overseas Railway Traffics

The latest traffic returns of the Argentine railways bring their totals up to 51 weeks and four days of the financial year and compare with those for 51 weeks and six days of 1935-36, so that the position for the complete year is now fairly clear so far as the gross earnings are concerned. At this time a year ago the Buenos Ayres and Pacific recorded an increase of £189,871 over the year 1934-35, whereas the Buenos Ayres Great Southern showed a decrease of £682,155, the Buenos Ayres Western one of £20,239, and the Central Argentine one of £249,635. It will be seen therefore from the accompanying table how great is the improvement in the traffic position in comparison with two years ago as well as with the past year.

	No. of Week	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
		£	£	£	£
Buenos Ayres & Pacific ..	52nd	94,169	+ 35,142	5,011,644	+ 639,221
Buenos Ayres Great Southern ..	52nd	118,424	+ 8,283	7,662,301	+ 990,728
Buenos Ayres Western	52nd	47,208	+ 5,532	2,587,485	+ 243,337
Central Argentine	52nd	134,885	+ 13,405	7,964,968	+ 1,866,326
Canadian Pacific	25th	520,800	+ 22,200	12,631,400	+ 942,600
Bombay, Baroda & Central India	11th	260,550	+ 27,825	2,253,975	+ 147,375

Aggregate gross earnings of the Canadian Pacific Railway from January 1 to the end of May amount to £11,074,200, an increase of £856,800. Net earnings for the same period are £1,413,000, an increase of £290,000.

* * * *

Cheap Mid-Week Fares

In recommending air facilities to the attention of L.M.S.R. transport salesmen in a recent issue of *Quota News*, Mr. Ashton Davies spoke of certain attractions peculiar to this means of travel. In addition to the advantage of time-saving on long or awkward journeys, there is now the attraction of cheap mid-week fares, available outwards and return on Tuesdays, Wednesdays, and Thursdays, for travellers by Railway Air Services to the Isle of Man. A correspondent remarks that in this direction the youngest railway enterprise is pioneering in a manner which its parent seems hesitant to follow, although equally alive to the desirability of relieving mid-week traffic pressure. Cheap fares excluding outwards travel during the daily rush hours, are, of course, no novelty; and we think it a pity that the wording of the relative announcements in the past has tended to obtrude the prohibition without giving compensatory prominence to the convenience of travel without crowding. The idea of keeping clear of the over-stressed periods can be presented attractively, and is as applicable to the mid-week days as to the off-peak hours.

* * * *

High Speed on the L.M.S. & L.N.E. Railways

The trial runs of the Coronation Scot of the L.M.S.R. and the Coronation of the L.N.E.R., made on June 29 and 30 respectively, were productive of some remarkable feats of speed, which are set out on page 40. Principal among these was the attainment of 113 m.p.h. by the L.M.S.R. train on the falling gradient from Whitmore to Crewe, tieing with the speed attained on August 27 of last year by the L.N.E.R. Silver Jubilee (when the latter was made up with the dynamometer car to a gross weight of 270 tons, so that the weight of the two trains was identical); the attainment by the L.N.E.R. train of 109 m.p.h. with a load of 325 tons behind the tender; the time of 119 min. made by the Coronation Scot from Crewe to Euston, which represents an average speed of 79·7 m.p.h. from start-to-stop, and includes an average of 83·3 m.p.h. over the 150·3 miles from Betley Road to Kilburn; and the 76·0 m.p.h. net average of the L.N.E.R. Coronation over the 105·5 miles from Grantham to King's Cross, which from the grading point of view is the more difficult route of the two, and was negotiated with a load heavier by 55 tons. The honours were thus evenly divided between the two companies.

* * * *

L.N.E.R. Coronation Train

It may be recalled that in the discussion of Mr. F. C. Johansen's paper to the Institution of Mechanical Engineers last November on the air resistance of passenger trains, Sir Nigel Gresley mentioned that recent experiments had shown the possibility of savings amounting to about 35 h.p. at 100 m.p.h. if the rear of a streamlined train were cut back 18 ft. to a beaver-tail shape. The new L.N.E.R. Coronation trains have this feature incorporated in their make-up, the end vehicle being a beaver-tail observation saloon which is detached at the end of each run, turned, and coupled up at the opposite end for the return journey. On the trial trip of this train last Wednesday there was evidence, in the apparently complete absence of eddies behind the train and the absolute cleanness of the tail windows at the end of the journey, that theory had been successfully translated into practice. When we inspected this vehicle during its construction at the Doncaster works, the art of the designer and carriage builder in making possible the practice of this theory was strongly impressed upon us. The train as a whole strikes a new note in railway travel comfort. All the best features of the Silver Jubilee are repeated, notably the effective insulation against noise and special ventilation, and the seating arrangements are even better.

* * * *

An Independent Witness Proves Valuable

The primary cause of the accident at Killamarsh Junction, L.N.E.R., on January 26, as shown by the summary of Lt.-Colonel Woodhouse's report on page 42, was a false clear distant signal. Fortunately there could be no dispute about it, as there often is in such cases, for the false indication was seen by a reliable, independent witness. The signal is one seldom used, and falling temperature had tightened the wire considerably—a risk inseparable from the single wire system when, as in this country, hand adjustment only is provided—so that, once

cleared, the arm would not return properly but remained about 40 degrees from the horizontal. It was found at danger, however, shortly after the collision, and Col. Woodhouse concludes that the signalman, on whom the principal responsibility rests for not looking at his repeater, altered the adjuster, though he could not recollect doing so. There was, of course, no arm moving with the block. That would have prevented acceptance of the train, which overran the junction by some 140 yd. Distant signal moving is being increasingly installed, and is a most valuable safeguard. False clear distant signals, especially in thick weather or, as Col. Woodhouse emphasises, where the warning acceptance is allowed, are extremely dangerous and too much attention cannot be paid to ensuring reliable working.

* * * *

Mile-a-Minute Italian Travel

Revolutionary advances in long-distance speed are accompanying the introduction of the fast railcar units on the main lines of the Italian State Railways, as set out in the Overseas paragraph on page 9 of this issue. Most remarkable of the innovations is the new Bologna—Florence—Rome—Naples service, which at one stroke cuts an average of 3½ hr. from the best times achieved over this 386½-mile route last summer. In the southbound direction the 110-min. timing of this flyer over the 130½ miles from Rome to the Mergellina station at Naples introduces to Italy its first railway start-to-stop schedule at over 70 m.p.h., at 71·2 m.p.h. to be precise, while the entire run, made in 6 hr. 8 min. southbound and 6¼ hr. northbound, gives an average speed of 63·0 or 61·9 m.p.h., according to direction, inclusive of stops. Last summer the quickest time for the same journey, with a guaranteed connection in Rome, was 9 hr. 37 min. Similarly the prolongation of the recently-introduced diesel-driven Venice—Milan service to Turin has cut last summer's best time of 6 hr. between Turin and Venice down to 4 hr. 18 min. in each direction for 261½ miles, again giving an average of just over a mile-a-minute inclusive of stops at Porto Susa, Milan, and Mestre. The advance in both railway operating methods and equipment that has made possible such high speed service is all the more remarkable when it is realised that less than two decades ago the traveller might regard himself as fortunate if his train were timed at as high a speed as 40 m.p.h. in Italy, and still more fortunate if it arrived anywhere near punctually.

* * * *

Mitropa Gutscheine Vouchers

A facility recently introduced by the Mitteleuropäische Schlafwagen und Speisewagen A.G. (Mitropa Company), is proving useful to railway passengers leaving and re-entering Germany during the period of the currency restrictions now enforced. It often happens despite care on the part of a traveller, that the latter finds him or herself when approaching the frontier, with a sum in RM. exceeding the 10 marks allowance beyond which amount no one may remove German currency from the country (except in cases where the allowance of 30 RM. has been brought in). The Mitropa company comes to their aid by issuing tickets called *Gutscheine*, which in effect are receipts for this surplus money, and on the passengers' return to Germany, these vouchers are accepted for meals on the dining car. The vouchers are issued at RM. 2.53 each, sufficient for a meal, plus 10 per cent. for service, but should refreshments costing less be taken, then the difference is refunded in cash. Presumably if a passenger so miscalculates his funds as to have an amount substantially in excess of the 10 RM. allowed, he could buy several vouchers and use them for a sleeping berth. Alternatively, as long as he has a meal on the train, he can, it seems, get the balance back in cash. This is something quite new. The scheme is intended primarily for passengers passing to and fro across the frontier, and is hardly applicable for occasional visitors to Germany. The text of these *Gutscheine* vouchers is printed in German and English.

* * * *

Attractive Locomotives

In Great Britain the growth of locomotive worship may be traced back to various original causes, and not least among them the trouble which has been taken in the past by locomotive designers to combine in the maximum degree possible grace with beauty in their products, coupled with the individuality of design and the smart liveries of colour which have helped to increase the attraction. In later years this interest has been fostered by organised visits to locomotive works and inexpensive literature on the design, building, and working of locomotives, in which the Great Western Railway, with a keen eye to the value of such propaganda, has taken so prominent a lead in this country. It is, however, a little surprising that in the United States—where hitherto most locomotive building has been to contractors' standard designs, so that little scope is given for variation in external lines, and where, also, locomotive decoration by way of colour has, until quite recently, been almost unknown—a *coterie* of locomotive "fans," on just the same scale of numbers and enthusiasm as in this country, should have grown up. So much so, for example, that the Illinois Central system, which founded the practice of sending original photographs of its locomotives to pressing applicants, has now printed sheets showing its principal types and their dimensions for general distribution. It is a saddening reflection that just at the time when other countries are awakening to a realisation of the value of smart locomotive exteriors, so much of the locomotive stock of Great Britain, in which this locomotive interest was born, is in so filthy a condition that its appearance is repellent rather than attractive.

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New C.P.R. Hudson Locomotives

The very successful 2800 series of the 4-6-4 type express locomotive on the Canadian Pacific Railway is to be multiplied, thirty more of the class being now on order from the Montreal Locomotive Works. The new engines will be almost identical with the existing series, except for a certain amount of streamlining at the front end, the main purpose of which is understood to be to lift the exhaust steam and smoke clear of the driver's outlook. Five of the new locomotives are to be equipped with boosters. With the twenty locomotives of this type already in service, the Canadian Pacific will be well equipped for handling the increasing passenger traffic on its system. It may be recalled that these engines work at a pressure of 275 lb. per sq. in., and have two 22 in. × 30 in. cylinders driving wheels 6 ft. 3 in. in diameter. Of the combined heating surface of 5,501 sq. ft., the firebox and arch tubes contribute 354 sq. ft., and the superheater 1,640 sq. ft. The grate area is 80·8 sq. ft., and the locomotive alone in working order weighs 158 tons. The 12,000-gallon tender, filled and with 21 tons of coal, weighs about 130 tons. The original C.P.R. Hudson type locomotives built in 1929, were described in THE RAILWAY GAZETTE of December 4, 1931 (page 714) when details were given of the remarkably efficient performance they were giving with heavy high-speed trains.

The Grand Junction Centenary

IN a year of notable railway centenaries, one that is worthy of more than passing attention is the one hundredth anniversary of the opening of the Grand Junction Railway. This was the first of our great trunk lines to be completed; it was opened throughout at one time, an unusual proceeding in those days for an undertaking of such magnitude; and was noteworthy for its comparatively modest Parliamentary expenses and constructional costs. Both the promoters and the general public were fully alive to the significance of their enterprise, and the *Manchester Guardian* of June 10, 1837, viewed " this great undertaking not merely as a prudent and beneficial speculation to the parties engaged in it, but as a great work of national importance." The Grand Junction Railway was projected at an early date in railway history, and as far back as 1824—when the Liverpool & Manchester scheme was under discussion—a Bill was deposited in Parliament for a railway between Birmingham and Birkenhead. The canal interests and landed proprietors successfully opposed the plan both then and in 1826 when a similar application was made.

Following the success of the Liverpool & Manchester Railway, the Grand Junction scheme took shape as a line between Birmingham and Warrington, and it was then astonishing how very slight was the amount of opposition offered to the Bill. This circumstance lessened very considerably the Parliamentary expenses of the railway, which, at the time of its opening amounted to only £22,758. The Grand Junction Railway's Act of Incorporation received the Royal Assent on May 6, 1833 (the same day as the London & Birmingham Railway), and for the next three years the line was apparently forgotten by the public, as the London & Birmingham Railway attracted the chief attention owing to its heavy engineering works and its communication with the Metropolis. As originally authorised, the Grand Junction relied on the Warrington & Newton Railway to provide the 4¼-mile link between its system and that of the Liverpool & Manchester Railway. The Warrington & Newton Railway was formed by Act of May 14, 1829, and opened on July 25, 1831. Three years later the Grand Junction promoted a Bill to absorb this small connecting line, which duly became an Act on June 12, 1835, and sanctioned the acquisition as from the last day of 1834.

Engineering works on the Grand Junction proper were comparatively slight, and the one notable exception, the River Weaver viaduct, was completed with ceremony on December 9, 1836, when it was announced that " no life or limb had been sacrificed." The railway was opened on Tuesday, July 4, 1837, without any display on the part of the company, although it is recorded that " the public assembled in vast multitudes along the whole line, and the different stations for some days had all the appearance of so many country fairs." At the next meeting of the company, the Chairman reported:—

> The experience of the first two months has been as satisfactory as the most sanguine could desire; most of the direct public conveyances have been superseded, and many of the collateral ones have been diverted upon the railway; private travelling on the line of country traversed by the railway has been annihilated; whilst, at the same time, the posting upon all the routes pointing towards it has been stimulated in an extraordinary degree. Liverpool and Manchester have been brought within a night's post of London—an advantage in which not only the places bordering upon the railway have participated, but others lying considerably wide of, and beyond it; the extent of which accommodation will be best appreciated by the fact that no fewer than about 740 mail bags are taken up and set down every day at the several stations on the railway.

In anticipation of the Grand Junction opening, the Post Office had despatched a mail from London on the night of July 3, which was taken to Birmingham by coach and thence to Liverpool and Manchester by rail, completing the journey in the unprecedented time of 16½ hours. The first Travelling Post Office—a horse box fitted up temporarily as a horse carriage—was run between Birmingham and Liverpool for the first time on January 6, 1838 and later in that year the T.P.O. was adopted as a permanent institution and was equipped with apparatus for exchanging mail bags at speed. The Liverpool & Manchester was amalgamated with the Grand Junction in 1845, and the enlarged Grand Junction was itself consolidated with the Manchester & Birmingham and the London & Birmingham to form the London & North Western Railway on July 16, 1846.

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French State Railways

IN a supplement to the June issue of *L'Etat, Notre Réseau*, the staff magazine of the French State Railways, M. Raoul Dautry, the late General Manager, calls attention to the serious position of the French railways generally with its resultant bad effect on the finances of the country. He congratulates the staff on the change in the status of the State Railways in relation to the other great French systems during the past eight years and urges them to greater efforts in the reduction of the deficits charged against the Common Fund. In length the State Railways represent 22·6 per cent. of the French railway total, but in 1936 its deficit represented 21·6 per cent. only of the total deficit. From 1921, the year in which the common fund arrangement was instituted, until 1928, inclusive, the State Railway deficits amounted to 58 per cent. of the whole. In 1930 the proportion was 49 per cent., but in 1931 it dropped to 28 per cent., and has now come down to 21·6 per cent.

For a long time the State Railways took the lowest place in the kilometric results obtained, but step by step they have attained the third place. One reason for the change is that for the past eight years the administration has pursued a policy of improving installations and equipment which has enabled it to reduce the number of staff, and effect economies. In 1928 the system had 84,010 permanent employees, and on June 30, 1936, only 69,773, or less than the number of 70,626 employed on January 1, 1914, before the eight-hour day was in force. Under the 40-hour week law the number of staff required may be estimated at about 87,000, but this number will be gradually reduced and in any event it will be less than the 87,991 employed in 1920. Another reason is the improvement in timetables, speed and tariffs which has succeeded in checking the fall in receipts. These have dropped only 23·20 per cent. since 1920, whereas on the other systems the decrease has been about 35 per cent. The financial position of the State Railways in 1936 is compared in the accompanying table with that in 1935:—

	1936	1935
Passengers	174,474,797	173,412,703
Tonnes, *petite vitesse*	18,680,249	18,057,312
Steam train kilometres	78,933,493	76,797,294
Electric train kilometres	6,673,861	3,043,436
Railcar kilometres	12,723,128	9,505,969
Operating ratio, per cent.	120·38	120·77
	Francs	Francs
Passenger receipts	503,316,600	496,383,600
Goods traffic receipts	1,111,207,600	1,065,704,700
Total receipts	1,659,327,600	1,603,392,500
Working expenses	1,997,445,100	1,936,390,500
Loss on working	338,117,500	332,998,000
Charge on common fund	910,449,600	883,416,300

By frank and cordial collaboration between all departments and all grades of the staff it has been possible to improve the condition of the permanent way; to increase

the average speed by 12 per cent. since 1928; to improve the punctuality of main line trains by more than 40 per cent.; and on the suburban lines to reduce the average delays by 3 seconds per train. Train accidents per 100,000 kilometres have been reduced from 2·40 per cent. in 1921 to 0·55 per cent. in 1936, and coal consumption per 100 ton-kilometres was only 6·86 kg. in 1936, against 9·41 kg. in 1921. Compensation for losses, thefts, and delays has been brought down from fr. 28,777,000 in 1930 to fr. 6,707,200 in 1936, and fatal accidents to the staff have been reduced from 103 in 1924 to 40 in 1936. Non-fatal accidents to the staff were 5,667 in 1936 against 16,051 in 1929.

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Kenya & Uganda Railways and Harbours

RESULTS of the working during the year 1936 of the combined railway, road, harbour, and steamship services in Kenya and Uganda were very good and are the more satisfactory as being an advance on those of the previous year which completely re-established the financial position of the administration. The report for 1936, which has recently reached us from Brigadier-General Sir G. D. Rhodes, the General Manager, shows that the improvement in gross earnings was due to a general increase in exports, and to the very much higher price level of primary products, with a resulting improvement in general business. At the same time the increase in expenditure was comparatively small because of the successful continuance of the economy measures initiated some time back. The services operated consist of 1,622 miles of open lines (metre gauge), 3,737 route miles of lake steamer services and 75 miles of road motor services for passengers and goods. Combined earnings of all the services for the year ended December 31, 1936, amounted to £2,986,591, an increase of £192,746, or 6·90 per cent., on 1935. The combined ordinary working expenditure of £1,321,663, exclusive of contributions to renewal funds, shows an increase of £77,832, or 6·26 per cent. The net earnings balance of £1,265,148 over total expenditure on revenue account gives a return of 5·75 per cent. on the total capital expenditure of £21,999,072, and of 9·09 per cent. on the interest-bearing proportion (£13,924,106) of this total. This balance covers interest and sinking fund charges of £850,100, leaving a surplus of £415,048. Comparative results of working the railway services (inclusive of lake steamers and motor transport services, but exclusive of harbour services) are shown in the accompanying table:—

	1936	1935
Passengers	514,077	481,501
Public traffic, tons	960,507	849,795
Train-miles	3,008,001	2,729,821
Public freight ton-miles	409,439,382	334,431,796
Public ton-mile receipts	10·963 cents	12·680 cents
Average haul, public traffic	412 miles	379 miles
Operating ratio, per cent.	45·20	45·63
	£	£
Passenger receipts	171,066	159,833
Public goods receipts	2,244,245	2,120,315
Gross earnings	2,527,158	2,384,923
Working expenditure	1,142,276	1,088,185
To renewal funds	351,397	336,067
Miscellaneous transactions (net)	Dr. 20,462	Cr. 18,791
Net revenue	1,013,023	979,462
Loan charges, &c.	634,363	632,301
Surplus	378,660	347,161

In passenger travel there was an increase both in numbers and receipts under all three classes, and the total passenger receipts were the highest since 1931. Parcels and luggage receipts improved from £34,315 to £36,815. Revised fares have been introduced as from January 1, 1937. Merchandise carried for the public increased by 110,712 tons, or 13·03 per cent., whereas receipts therefrom increased by £123,930, or only 5·84 per cent. This discrepancy and the fall in receipts per freight ton-mile are due partly to rate reductions but mainly to the fact that about three-quarters of the increased traffic was carried at low exceptional and export rates. As appears in the index of efficiency wherein 1926 (the year of introduction of the train control system) is taken as the datum year, the final index figure has shown a steady advance each year to that of 150·54 in 1936. The average load per 12-ton wagon unit is 8·35 tons, against 7·4 tons in 1926, and the average net train load is now 210 tons, an advance of 75 per cent. on 1926. Freight train miles per train hour are 13·69 against 7·07 in 1926, and the percentage of locomotive stock available has risen from 69·95 to 84·91. Coal consumption in train miles per lb. also shows a material reduction. Efficiency figures are again supplemented in the report by a series of graphs. The improvement in the condition of the track has been maintained. Two Gowthorpe track recorders have been in use during the year, and have proved very satisfactory in ensuring efficient and economic maintenance. Regarding locomotive repairs, the progress system, which was installed at the beginning of 1935, again worked satisfactorily. Engine mileage between general repairs has increased from 95,111 in 1935 to an average of 102,631 in 1936, consequent on the intermediate repair scheme, which was introduced during 1934 for the concentration of locomotive repairs where the best facilities exist to carry them out. The caboose system of engine working was again maintained satisfactorily during the year. Average engine miles per day for Garratt and E.B.3 class engines in service show an increase over the satisfactory figures recorded during 1935. Eight new caboose coaches were manufactured in the Nairobi workshops during 1936. They are of steel construction, electrically welded entirely. Photographic reproductions of them are given at the end of the report. Hollerith tabulating machines were installed during the year.

Owing to the restoration of the finances of the administration it was found possible in 1935 to revert to a more adequate standard of maintenance and to embark on a programme to overtake arrears accumulated during the depression. This programme was steadily carried out during 1936 and nearly all arrears have been dealt with, with the exception of rolling stock, which will not be completely up to date until the end of 1937. It seems likely, however, that 1936 will prove to have been the most satisfactory year that the administration will experience for some time from a unit cost point of view. Costs are now going up seriously and it may be advisable to consider the postponement of the less urgent projects of new works and betterments until the supply of stores and materials becomes steadier and less costly.

NEW FRANCO-POLISH RAILWAY CONSTRUCTION.—According to the Official Gazette *Monitor Polski* of June 16, the Franco-Polish Railway Company has started construction of the projected railway line between Siemkowice on the Franco-Polish line, and Czestochowa, a distance of 48·5 km. This line will be an important link between the Dabrowa coal basin, the industrial district around Czestochowa, and the port of Gdynia via the Silesia-Gdynia railway. It is estimated that it will be completed in the autumn of 1938. This branch forms part of the works to be undertaken following the payment of the second instalment of the loan granted to the Cie Franco-Polonaise des Chemins de fer, bringing it to fr. 540 millions. The circumstances in which the loan was granted, and the progress of the railway so far, were outlined in our issue of March 19.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Continental Summer Train Services

56, St. Mary's Mansions,
Paddington, W.2
June 11, 1937

To the Editor of The Railway Gazette

Sir,—As a footnote to Mr. Wiener's article in your issue of May 7 on the summer Continental services, it may be noted that the new railcar units at 9.20 from Brussels and 20.15 from Paris have put an end to the working of Belgian locomotives from Brussels to Aulnoye and back; the 9.15 from Paris has had its standing time at Aulnoye reduced from 7 to 2 min., and is now allowed 66 instead of 61 min. for the 59·3 miles from Aulnoye to Brussels, hitherto the hardest run booked to Belgian locomotive power. To the article in your May 21 issue on French train service accelerations, it should, I think, be added, that a supplement, amounting to 29 francs for the through journey, is now payable by second class passengers, on the P.L.M. streamlined Paris—Marseilles 9-hr. service, although the 10 hr. 20 min. services (11.45 from Paris and 8.55 from Marseilles) which it has superseded were open without supplement to first and second class alike. Similarly, the one-class Bugatti railcars, which complete the through Riviera communication at 21.10 from Marseilles and 6.55 from Nice, now appear as "first and second class," though they previously conveyed third-class (local and through) passengers at a small extra charge, amounting only to fr. 8 between Marseilles and Nice. It is curious to see how tenaciously the French railways adhere to the exclusive character of their best trains, and how poorly their facilities for tourist travel still compare with the arrangements, for instance, in Germany, Italy, and Belgium. Even the "concessions" this year for the Paris Exhibition are less attractive than what was offered in 1931.

Yours, &c.,
R. E. CHARLEWOOD

The Coronation Scot

16, Wealdstone Road,
Harrow
June 23

To the Editor of The Railway Gazette

Sir,—I took advantage of the L.M.S. Company's invitation to the public to inspect the new Coronation Scot train at Euston station, and was grateful for the opportunity. It is quite evident that the company is in earnest in its attempt to overtake the margin by which the L.N.E.R. has got ahead in the matter of high-speed trains, but there were one or two points which occasioned surprise when looking at the train.

The excellent account in The Railway Gazette indicated that two of the units in the Coronation Scot were given over entirely to kitchen purposes, but I was astonished to find that cooking was by the old fashioned gas range. I was quite under the impression that for new rolling stock this method is as obsolete as the roof oil lamp, and I was very sorry indeed to find that such is not the case.

Then again: the only compartment accommodation on this train available for third class passengers is in a third brake vehicle. Surely for a long journey, accelerated though it is, this is not sufficient. The majority of British passengers still prefer the compartment type of coach, especially as sitting in an open coach where meals are being served can be unpleasant for those not desiring to eat.

One other point also occurred to me: in view of the complete streamlining of the locomotive and tender, the wide gaps between the coaches, due to the use of the antiquated "British standard" gangways and couplings, seem ludicrous. Taken together with the box-like affairs on the tops of the passenger coaches, the pretence of calling this train "streamlined" is unfortunate. I came away from Euston wondering what the L.N.E.R. Coronation train will be like, and feeling that the L.M.S.R. has still much to learn. And, above all, feeling sad that a noble engine like No. 6220 had been so disfigured by this foolish craze for novelty. Had it been finished in the normal manner, what a magnificent creature it would have been, and what an ornament to the line on which it is to run.

Yours faithfully,
ARTHUR L. DAVIES

[Certain advantages are claimed for gas-cooking, as indeed for many of the points our correspondent condemns. Individual preferences vary greatly, and it is impossible, within the scope of reasonable expense, to please everyone simultaneously. For ourselves, we have little doubt that the common advantages of both L.M.S.R. and L.N.E.R. trains will prove highly attractive to the public.—Ed. *R.G.*]

Increased Railway Charges

154, Croydon Road,
Anerley, S.E.20
June 5, 1937

To the Editor of The Railway Gazette

Sir,—Mr. I. Watkin, in his letter published in your issue of June 4, could, I think, have raised much stronger objections to the increasing of short-distance railway fares by adding a ½d. as the only way of adding 5 per cent. There are numerous cases where the traveller already pays an extra ½d. or 1d. for travelling a fraction of a mile, and to increase such fares by ½d., as is foreseen by Mr. Watkin, might result in an increase much greater than the 33⅓ per cent., mentioned by him, if reckoned on mileage. For example, the distance between Anerley and Norwood Junction on the Southern Railway is approximately 1·1 mile, and the single fare is 2½d. To increase this to 3d. would surely be an imposition. On the other hand, to keep short distance fares the same and to add 5 per cent. to longer distance fares might result, in certain cases, in two single tickets covering consecutive distances being less than the through fare. In my opinion, the fairest way is to increase the standard rate per mile: if this were done, short distance fares would remain the same except where the traveller is already getting practically full mileage for his fare. It is much easier to reduce a distance by 5 per cent. than to increase a fare, especially a small one, by 5 per cent., and a standard rate of 50 ch. a penny appears a convenient one. However, this at once suggests a rate of one kilometre for a penny, an increase of approximately 6 per cent. It may be many years before this country adopts the more convenient decimal system for its coinage, weights, and measures, but the calculating of railway distances would appear a step in the right direction, and as far as fares are concerned would cause slight inconvenience to the traveller.

I am,
Yours faithfully,
C. RANDALL HOSKINS

"Records"

The Railway Club,
57, Fetter Lane,
London, E.C.4
June 14

To the Editor of The Railway Gazette

Sir,—I was interested to read, under the heading "Records," in your issue of June 11, details of the non-stop run to Morecambe of the Ulsterman. You go on to say that the 7 p.m. departure from London (Euston) will be two hours later than in Midland days from St. Pancras. I think it only fair to say that the latest time of departure from St. Pancras in Midland days was at 6 p.m. (July, 1914). Thus there will be a difference of only one hour compared with the Midland's best.

Yours faithfully,
G. A. NEWMAN

THE SCRAP HEAP

Among the bequests of the late Mr. Edward Wallis, a former railway electrical engineer of Cheam, Surrey, was his collection of railway tickets, photographic negatives, and signalling instruments, and the documents relating thereto, to the York Railway Museum. Mr. Wallis left estate valued at £15,032.

* * *

What is claimed will be the world's largest escalator is to be installed in the Moscow Underground railway, the second line of which is now under construction. This escalator, which will serve the Dynamo Stadium station, will carry passengers up a height of 130 ft. and will have a total length of 210 yd. Altogether 27 escalators will be installed at the various stations on the new line.

* * *

A report published by the Patent Office of the Government of India shows that the number of applications for patents increased from 980 in 1935 to 1,068 in 1936. Indian inventors showed great ingenuity in introducing innovations in internal-combustion engine designs. Six interesting applications were received—all from the Punjab — mainly concerned with engines working on heavy oil.

* * *

FOR AMUSEMENT ONLY

The Austrian Federal Railways have now provided playing tables for use in their fast trains. They are available at several of the principal stations, and passengers wishing to play chess, draughts, dominoes, cards, or other games, on the journey can obtain one by applying to the guard, the price being one schilling, irrespective of the length of the run. The tables are not to be used for any other purpose.

* * *

Because the train was overcrowded Jagga Raju stopped the Calcutta Mail at three different places by pulling the alarm cord. Summoned before a magistrate, he complained that he was nearly suffocated by the overcrowding in the train. Seventy-eight passengers, he said, were in a compartment designed to hold only 58 persons. The magistrate said that Raju could have registered his complaint in a less drastic manner, and fined him about £4.—*From the "Evening Standard."*

* * *

It is announced by the L.M.S.R. that from July 5 Griffith's Crossing station, on the Bangor—Carnarvon line, will be closed to all traffic except freight traffic in full loads. Its chief interest lies in its name, for I have heard it averred—and some reader may know the rights of the matter—that Griffith's Crossing has no reference to some local celebrity of that name, but is a Welsh corruption of "Agricola's crossing," the said Agricola having at one time crossed the Straits on rafts made of skins. That he did so seems likely enough, for the Romans never came to anything, river, mountain range or sea, but they must needs go on and find out what was on the other side. The instinct of an imperial people, say you, and no doubt you are right. And why should a Griffith make a stir, going into Anglesey? But a Roman general at the head of an army —why that is a matter that would give the Welsh, always noted for their long memories, something to remember.—*"Peter Simple" in the "Morning Post."*

* * *

WELL, I NEPHYR!

A cow named the Burlington Zephyr,
Was a speedy and reckless young hephyr;
When her owner drew near,
She kicked off his ear,
And now the poor farmer's much dephyr.

* * *

An alligator two feet long suddenly emerged from a waste-paper basket on the crowded platform of a New York underground railway station. It crawled slowly down the platform. The passengers, mostly women, fled screaming towards the nearest exit. Police were hurriedly summoned. Keeping out of range of its snapping jaws, the police managed to lasso the alligator's mouth with a stout piece of rope. They put the animal in a cardboard box and carried it off to the nearest police station, where the Society for the Prevention of Cruelty to Animals called for it. Passengers on the station platform said that shortly before the alligator appeared a man put a large bundle into the waste-paper basket.—*From the "Evening News."*

* * *

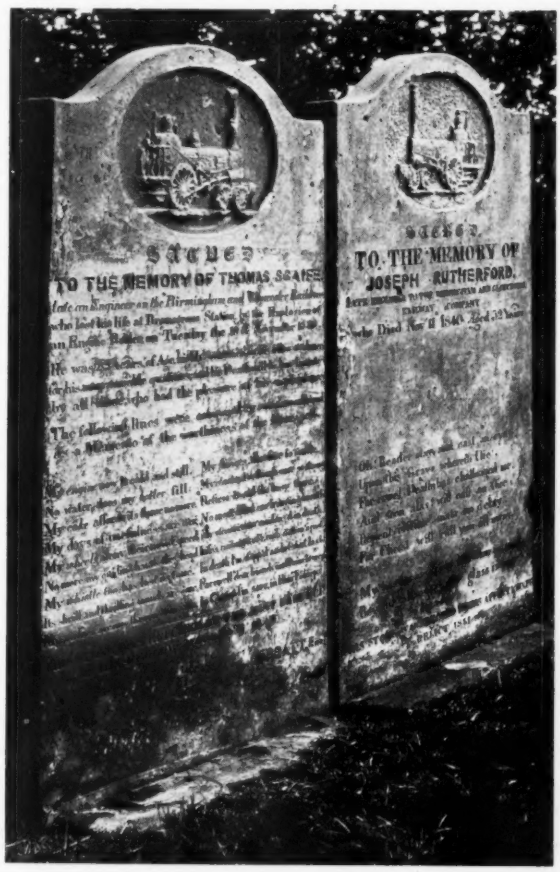
We reproduce alongside a photograph of the well-known gravestones in Bromsgrove churchyard to the memory of the victims of the locomotive boiler explosion of November 10, 1840. When visiting the spot a few days ago we found that the stones are still cared for, and were cleaned last year. Moreover, although the intervening yards to the nearest footpath are covered by tall thick grass, a track beaten through this gives evidence that the stones are still the venue of visitors.

Although each stone shows what appears to be one of the 4-2-0 American (Norris) locomotives supplied for working the Lickey incline, the engine that exploded was actually a privately-owned experimental locomotive named *Surprise*, sent for a trial run in the hope that the Birmingham & Gloucester Railway might be induced to buy.

On the stone to Thomas Scaife are the following lines :—

My *engine* now is cold and still :
No water does my *boiler* fill ;
My *coke* affords its flame no more ;
My days of usefulness are o'er ;
My *wheels* deny their noted speed ;
No more my guiding hands they heed ;
My *whistle* too has lost its tone ;
Its shrill and thrilling sounds are gone ;
My *valves* are now thrown open wide ;
My *flanges* all refuse to guide ;
My *clacks* also, though once so strong ;
Refuse to aid the busy throng ;
No more I feel each urging breath ;
My *steam* is now condensed in death ;
Life's *railway's* o'er, each *station's* past ;
In death I'm stopp'd and rest at last ;
Farewell, dear friends, and cease to weep ;
In Christ I'm safe, in Him I sleep.

These lines are not, however, original. With but a couple of verbal differences, they appear on an inscription in Whickham churchyard, County Durham, to Oswald Gardiner (wrongly engraved "Gardner"), who lost his life in an accident on the Newcastle & Carlisle Railway on August 15, 1840.



Gravestones in Bromsgrove churchyard erected in 1842 to the memory of the 1840 boiler-explosion victims

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

INDIA

Hardinge Bridge Protection Research

At the request of the Hardinge Bridge Committee, the research section of the Bombay Government Irrigation Department undertook extensive laboratory research into the erosion of the River Ganges and its effect on the Hardinge bridge on the Eastern Bengal Railway. The Ganges, or Padma, as it is locally called, is a notoriously errant river, and when the bridge was built very extensive training works were undertaken to ensure its course through the bridge. These consisted of the right and left guide banks at the bridge; a protection bank on the left bank of the river at Sara, 3½ miles upstream; and another on the right bank at Raita, 12 miles upstream. The experts at the Hydrodynamic Research Station were asked to investigate the causes of the breach made in one of the guide banks, and to find out how the danger of further attacks could be effectively removed.

Ten series of experiments were carried out with a model specially built for this investigation, and in the initial stages of the experiments, clay was taken from the site of the bridge for making the banks and the bed of the river in the model; it was later found that local clay served the purpose equally well. A length of about 20 miles of the River Ganges in the vicinity of the Hardinge bridge was reproduced in miniature, and experiments were directed to ascertain the best and cheapest method of training the river so as to avoid danger to the bridge. As a result of these investigations, the experts recommend that the best method would be to allow the nose of the Sara protection bank to be eroded. The following general conclusions regarding guide banks were also reached: (1) that water tended to adhere to a guide bank and left it with reluctance; and (2) that though a guide bank induced a river to outflank its upstream nose, there was a limit to the embayment caused thereby.

Experiments were also carried out with a "pilot" model of about 60 miles of the river to examine speeded-up river movements. These experiments are still in progress and are expected to yield important results.

Railway Transport of Perishable Goods

The Defence Department of the Government of India has initiated an inquiry as to the best method of carrying perishable goods by rail without damage. Experiments in this connection are being conducted by the North Western Railway into two alternative methods, with (*a*) dry ice tanks and (*b*) mechanical refrigerators. Although the experiments have not yet been concluded, it is expected that the long-distance haulage obtaining in India will favour the use of mechanical refrigerators. Considerable interest is attached to the result of the N.W.R. experiments, as the provision of containers fitted with a refrigerating device is being considered as a commercial proposition.

Increase in Longer-Distance Fares

From June 1, the basis of charge for third class single tickets on the East Indian Railway has been slightly increased for long distances. The basic rate for the first 50 miles—the average passenger lead is below this figure—remains the same, but the person travelling 500 miles now has to pay -/9/6 (10½d.) more than on May 31, last. Coaching traffic on the East Indian Railway has steadily declined for several years past, although service improvements and fare reductions have been introduced to compete with road motors. The effect of the increase will be watched with interest.

NORWAY

Better Train Services

With the introduction of the summer timetables, on May 22, considerable improvements were effected in certain of the internal train services of Norway, as well as in the international Scandinavian connections. The sleeping car service from Stockholm to Oslo, via Charlottenburg, now leaves Stockholm at 10.5 instead of 11 p.m., and reaches Oslo at 8.5 instead of 9.30 a.m., an acceleration of 30 min. In connection, a restaurant car train leaves Oslo for Bergen at 8.40 a.m., reaching Bergen at 7.18 p.m., a gain of 57 min. on the service of last summer, and of 1 hr. 27 min. from Stockholm to Bergen. An additional restaurant car train leaves Oslo for Bergen at 9.30 a.m., reaching Bergen at 9 p.m.; this is in connection with the sleeping car service from Berlin and Gothenburg, which now reaches Oslo at 9 a.m. instead of 9.38 a.m. In the reverse direction the 8 a.m. from Bergen is due in Oslo at 7.50 instead of 8.15 p.m., and is followed by a 9.25 a.m. train, due at 8.30 p.m., an acceleration of 50 min. on last summer's time. The former connects at Oslo with the 8.10 p.m. sleeper for Stockholm (previously 7.15 p.m., and with no connection from the Bergen line), reaching Stockholm at 6.25 instead of 7.5 a.m., an acceleration of 95 min. between Oslo and Stockholm. The Gothenburg and Berlin sleeper, at 8.5 p.m. from Oslo (previously 7.30 p.m.) also now makes connection with the 8 a.m. from Bergen, whereas there was no connection previously. These new connections to and from the Bergen line will benefit mails as well as passengers. On the Trondheim main line the 10.5 a.m. from Oslo to Trondheim leaves at 10.35 a.m., but still reaches Trondheim at 10.15 p.m.; an acceleration of 30 min.; it is preceded by a relief train at 9.40 a.m. from Oslo, due in Trondheim at 9.48 p.m. In the reverse direction the 8 a.m. from Trondheim now leaves at 7.45 a.m., and reaches Oslo at 7.46 instead of 8.5 p.m., so connecting with the 8.5 p.m. Oslo to Gothenburg and Berlin sleeper.

ARGENTINA

Engineering and Transport Coronation Dinner

On May 13, the members of the Centre of British Engineering and Transport Institutions in Buenos Aires celebrated the Coronation at a dinner held in the restaurant of the Central Argentine Railway Retiro terminus. The function, which was attended by over 220 members and guests, was the largest gathering of the kind ever held in Buenos Aires as a demonstration of loyalty to the Crown. The Chairman of the Centre, Mr. M. F. Ryan, presided; others at the high table were:—

Messrs. C. E. S. Dodd, H.B.M. Chargé d'Affaires; Stanley Irving, C.M.G., Commercial Counsellor to the British Embassy; Major W. A. McCallum, Chairman, British Chamber of Commerce; Messrs. D. M. MacRae, O.B.E., General Manager, Central Argentine Railway, and Chairman, the British Society; C. R. Schiller Harris, Director-General, B.A.G.S. & B.A.W.R.; J. Wilson, O.B.E., General Manager, Entre Rios & Argentine N.E.R.; F. L. Creswell, M.C., M.Inst.C.E., Chief Engineer, B.A.G.S. & B.A.W.R.; Engineer A. Vaquer, President, the Centre of Argentine Engineers; Messrs. W. C. R. Livesey; H. C. Siddeley; J. L. Partington; J. Mailer (C.M.E., Cordoba Central Railway), G. R. Mawson, and O. J. Buckley.

The Chairman, before proposing the toast of "The Guests," read a message which had just been received from H.M. Private Secretary in acknowledgment of a cablegram of loyal congratulations from the centre, and another message from the Chairman of the centre of Argentine Engineers in reply to a greeting from the centre.

In proposing the toast, Mr. Ryan mentioned that that was the third occasion on which the members of the centre had gathered there to demonstrate their loyalty to the Throne. Prior to the opening of the British Exhibition in 1931, they had the privilege of entertaining H.R.H. the Prince of Wales. Then a short time ago they had assembled to celebrate the Silver Jubilee of His late Majesty King George V. That night they had come to do honour to H.M. King George VI, who they hoped would long be spared to reign over them. After referring to the unfailing sense of public duty and interest in every branch of national activity shown by the Royal Family, Mr. Ryan mentioned that His Majesty as Duke of York had been an honorary member of the Institutions of Civil and Mechanical Engineers. Mr. Ryan coupled with the toast the names of H.M. Charge d'Affaires, Engineer

Vaquer, and Mr. Irving, whom he welcomed with all the other guests on behalf of the centre.

Mr. Dodd, who replied, expressed the honour he felt at being the principal guest at such an important gathering. He would not fail to convey to the Foreign Office the assurance given by the Chairman, on behalf of the centre, of their loyalty to the King, and he felt sure that when his despatch was laid before him, His Majesty would be greatly gratified.

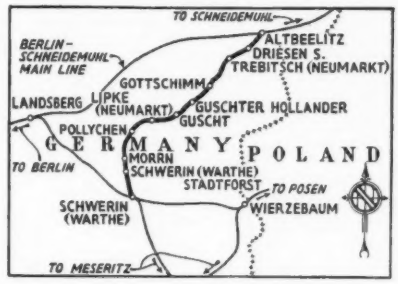
Engineer Vaquer, who proposed the toast of "The Centre," conveyed to the British engineers, on behalf of the 2,000 engineers of his own association, their sincere greetings on that auspicious occasion. He asked the company present to accept from an Argentine engineer his sincere hope that Their Majesties had commenced a reign which would be fruitful for themselves, their subjects, and the Empire, and during which they would be able to establish their goal of peace and goodwill among men.

Mr. Harris, who replied, expressed the thanks of all present to Engineer Vaquer for his presence, and also for the very generous terms in which the Argentine authorities and the press had joined with the British people in commemorating the Coronation of King George and Queen Elizabeth. That alone, he suggested, was proof of the lasting friendship which bound the British and Argentine peoples together. He referred to the important role played by engineering and transport institutions in the development of Argentina, and called for still closer collaboration between Argentine and British engineers in the common service they were called upon to render to the Republic. [A group taken at this dinner forms the subject of an illustration on Page 35.—Ed. *R.G.*]

GERMANY

New Line near Polish Corridor

The post-war territorial changes which resulted in the formation of the Polish Corridor made a complete alteration in the current of trade in many districts [as mentioned in an editorial in our issue of October 16, 1936, page 603—Ed. *R.G.*], and over 20 railway lines were stopped short near the new frontiers, many of them becoming quite unimportant. Several petitions were presented to the German Government by the new border districts asking for improved facilities parallel to the frontier. The accompanying map, taken from *Die Reichsbahn*, illustrates one which was completed last year. This new line provides direct standard gauge communication between Schwerin (Warthe), on a cross-country line from Landsberg to Wierzebaum, near the corridor, and Altbeelitz, near Kreuz on the main line from Berlin to Schneidemühl (Dirschau—Königsberg), which itself passes through Landsberg about 50 km. (31 miles) west of Altbeelitz. Construction was decided on under the Eastern Districts Relief Law of 1931, and the line was opened from Schwerin to Lipke, 18 km. (11 miles) on October 4, 1935, and throughout, a distance of 51 km. (31½ miles)—all single track—on August 5, 1936. It serves a district rich in forests covering an area



Sketch map showing the Schwerin—Altbeelitz and adjoining lines

of about 500 sq. km. (193 sq. miles) with 30,000 inhabitants, and also traverses parts of the Netze and Warthe valleys and serves certain industries, such as saw mills and tile works. There is much beautiful scenery to attract visitors in summer. The principal engineering works are girder bridges over two rivers, for which 200 tons of steel were required. There are 10 under- and 2 overbridges, and some level crossings, 3 only being of importance. The station buildings are of neat and pleasing design. At Lipke and Altbeelitz yards have been provided with extensive sidings to enable seasonal traffic to be handled conveniently and quickly.

ITALY

Higher Speeds

Important train service improvements are revealed in the summer timetables that came into force on May 22. New high-speed trains, electrically-operated, are running between Bologna, Florence, Rome, and Naples. Leaving Bologna at 3.50 p.m., the southbound train runs the 59½ miles by the Apennine *direttissima* to Florence in 55 min., and the 196½ miles thence to Rome non-stop in 190 min.; stops of 5 min. at Florence and 8 min. at Rome are succeeded by a non-stop run of 110 min. over the 130½ miles to the Mergellina station at Naples, making a sequence of timings at 64.5, 62.1, and 71.2 m.p.h. start-to-stop. In the reverse direction the start is from Naples at 10.20 a.m., and the running times are 115 min. to Rome, 190 min. thence to Florence, and 55 min. from there to Bologna, making an overall time of 6¼ hr. northbound and 6 hr. 8 min. southbound for the total distance of 386½ miles. Last summer the quickest time from Bologna to Naples was 9 hr. 37 min., and although with a risky 5 min. connection in Rome it might have been possible to travel from Naples to Bologna in 8 hr. 38 min., the proper connection required 9 hr. 49 min. The new service, therefore, cuts more than one-third off the old times, and represents an acceleration of roughly 3½ hr. At Bologna these high-speed trains are in connection with fast services to and from Milan and beyond, which bring the best time between Milan and Rome down to 6 hr. 55 min., and between Milan and Naples down to 8 hr. 53 min. Similarly between Turin and Milan new diesel-driven railcar services reduce the time over the 91¼ miles between Porto Susa station at Turin and Milan Central to 84 min. westbound and 85 min. eastbound; and steam-hauled non-stop trains make the same run in 94 and 98 min. Between the main Porto Nova station at Turin and Milan the times range from 91 min. by the two quickest services to 105 min., as compared with best times of 113 to 115 min. in the summer of 1936. At Milan the 6.32 a.m. railcar service from Turin continues as a high-speed service at 8.10 a.m. to Venice, non-stop over the 161½ miles to Mestre in 152 min., and reaching Venice in 2 hr. 40 min. Similarly in the reverse direction, the 6 p.m. railcar service from Venice (153 min. non-stop from Mestre to Milan), continues to Turin, arriving at 10.18 p.m., the entire journey of 261½ miles being thus completed in 4 hr. 18 min. in each direction, stops included, at an average of just over 60 m.p.h. throughout. Last summer the quickest Turin-Venice time was one of 6 hr. There has been a tendency, however, to slow down some of the fastest steam services, the best Milan-Venice times being now 3 hr. and 3¼ hr., and those between Milan and Bologna 134¼ min., decelerated from 2½ hr. to 2 hr. 35-38 min.

FRANCE

Paris-Le Mans Electric Line Inaugurated

The newly electrified line from Paris to Le Mans was inaugurated on June 10 by the State Railway authorities. A special express composed of Pullman cars and hauled by a 4,000 h.p. electric locomotive, left the Montparnasse station in Paris at 12.35 p.m. and arrived at Le Mans at 2.45 p.m., thus covering the distance of 131 miles in 2 hr. 10 min. The time will gradually be cut down to 2 hr. as the new rolling stock gets into good running trim; this will bring the average speed up to 65 m.p.h. Taking part in the inaugural run were various officials of the State Railways including Messieurs Antonini, General Secretary; Jean Levy, Ingénieur en Chef (Matériel); Nicolet, Ingénieur en Chef Adjoint (Matériel); Porchez, Ingénieur des Ponts et Chaussées. Satisfaction was expressed at the successful completion of the electrification, which has been carried out in little over two years under M. Dautry, General Manager.

INDIAN RAILWAY ENQUIRY

The Committee reviews State railway finance and methods, and concludes that although results are in many respects satisfactory in comparison with like administrations elsewhere, many reforms are desirable. The position of the railways under the new Constitution is dealt with. The railways are not likely to earn more revenue, over a period of years, than will meet their interest charges

THE Indian Railway Enquiry Committee appointed on October 20, 1936, was composed of Sir Ralph Wedgwood, C.B., C.M.G.; Chief General Manager, London & North Eastern Railway, Chairman; Mr. W. A. Stanier, M.I.Mech.E., M.I.Loco.Eng., Chief Mechanical Engineer, London Midland & Scottish Railway; and Mr. H. Cheadle, D.S.O. M.C., Chief Traffic Manager, South African Railways; assisted by Mr. A. Forbes Smith, Assistant (Rates and Statistics) to the Chief General Manager, London & North Eastern Railway. Messrs. L. H. Kirkness, C.I.E., O.B.E., D.S.O., and B. M. Strouts acted as Joint Secretaries.

The terms of reference of the committee were as follow:—

To examine the position of Indian State-owned railways and to suggest such measures as may, otherwise than at the expense of the general budget,

(i) secure an improvement in net earnings, due regard being paid to the question of establishing such effective co-ordination between road and rail transport as will safeguard public investment in railways, while providing adequate services by both means of transport; and

(ii) at a reasonably early date place railway finances on a sound and remunerative basis.

The following is a summary of the conclusions and recommendations of the committee, which refer to a total mileage in 1935/36 of 31,782, and a capital at charge of Rs. 789 crores, or (591,750,000). (Rs. 1 crore = Rs. 100 lakhs = Rs. 1,00,00,000; and Rs. 1 lakh = £7,500; Re. 1 = 1s. 6d.)

Financial Survey

The Government of India Act, 1935, brought about a new financial relationship between the Central Government and the Provinces, and in Sir Otto Niemeyer's report of April 6, 1936, emphasis was laid upon the importance of the contribution made by the State-owned railways to the general budget, and concern was expressed at the financial position of the railways. A report of the Public Accounts Committee, published on September 5, 1936, also referred to the subject and recommended that the situation should be examined by an acknowledged expert in railway management. The committee, bearing these recommendations in mind, began the enquiry by making a study of the financial position of the railways since railway accounts were separated from the general budget in 1924, based on a statement submitted by the Railway Board, reproduced in the report and covering the period of 12 years, 1924/25 to 1935/36. In each of the first six years, after provision had been made for depreciation and interest charges there was a surplus of revenue; in each of the last six years there was a deficiency. "Both in the period of acute depression, and in the years of partial recovery succeeding it, the railways of India showed more favourable results than the railways of other countries which passed through a similar crisis, such as Great Britain and the United States of America." This is borne out by the figures given in tabular form in the previous column.

Material economies have already been obtained by the retrenchment policy adopted by the railways, which has resulted in a reduction in staff from 712,198 to 597,396, or 16 per cent. This compares with the retrenchment made on the railways of Great Britain and the United States of America as shown in the following statement.

—	India			Great Britain			U.S.A.		
Number of staff	1930	712,198	100	1930	627,989	100	1929	1,660,850	100
	1934	587,972	83	1933	539,278	86	1933	971,196	58
	1936	597,396	84	1936	559,356	89	1936	1,065,000	64
		lakhs of rupees			£ million			million dollars	
Cost of staff	1929/30	36,16	100	1930	110·7	100	1929	2,897	100
	1933/34	31,77	88	1933	92·6	84	1933	1,404	48
	1935/36	32,88	91	1936	99·5	90	1936	1,801	62

—	India (lakhs of rupees)		Great Britain (£ million)		U.S.A. (million dollars)	
Gross earnings—						
1929/30 ..	1,02,70	100	1929	182·8 100	1929	6,280 100
1932/33 ..	84,43	82	1932	145·3 79	1932	3,127 50
1935/36 ..	90,65	88	1936	156·9 86	1936	4,053 65
Working expenses—						
1929/30 ..	68,18	100	1929	143·9 100	1929	4,506 100
1932/33 ..	62,85	92	1932	121·3 84	1932	2,403 53
1935/36 ..	64,12	94	1936	126·7 88	1936	2,931 65
Percentage return—						
1929/30 ..	4·5		1929	4·2	1929	4·8
1932/33 ..	2·7		1932	2·4	1932	1·3
1935/36 ..	3·4		1936	3·1	1936	2·6

On the revenue side the matter of charges is exhaustively reviewed. The following comparison is quoted from the volume of statistics published by the International Union of Railways for 1935, the figures being given in gold centimes per passenger kilometre and per ton kilometre:—

	Average receipt (gold centimes) per Passenger kilometre	Ton kilometre
Italy	4·14	4·56
Germany	2·96	4·32
Great Britain	2·39	4·83
France	2·41	4·49
South Africa	—	3·26
Canada	3·98	1·84
U.S.A.	3·69	1·84
Argentine Republic	2·02	2·57
India	1·25	2·50
Japan	1·00	1·39

These figures show that the railways of India compare favourably with those of other countries, at any rate financially. The general survey of the administration of the State-owned railways during the period 1924-1936 led the committee to the conclusion that "their financial results

of working are better on the whole than those of the comparable railway systems, whilst their operating statistics indicate that there has been a substantial advance in efficiency and economy of management since the economic depression began in 1930." At the same time the survey indicates certain directions in which improvement might be effected.

Departmental Economies

The overall reduction of 20 per cent. shown in the abstract of expenditure in the Engineering Department is regarded as very creditable, and particularly so as the figures exclude the effect of any immediate economy brought about by the postponement of renewals. The economy has been obtained in various ways. Gangs have been reduced; lines have been reclassified so as to permit of a lower standard of maintenance on less busy sections, patrolling has been discontinued on some sections. Strength of permanent way gangs has now been reduced to 2·5 men per track mile. The committee considers that further attention should be directed to certain measures of economy in this department such as (i) the examination on a unit basis of the number of men engaged on maintenance work; (ii) the introduction of motor trolleys and the employment of mobile gangs; (iii) the abandonment of fencing at certain places; (iv) a further reduction in the number of gatemen; (v) the reconditioning of fishplates; (vi) the use of welding for repairing bridge girders, points and crossings and for reducing the number of rail joints, and (vii) cheaper and simpler methods of signalling. The report observes that both in Great Britain and South Africa the cost of permanent way maintenance has been reduced by the employment of large gangs with motor trollies to cover lengths equal to four or five times the normal length supervised previously by one gang. As regards reconditioning of fishplates, it has been found possible in Great Britain to extend the life of these by the use of suitable tools under a drop stamp; and, in the matter of welding, the Indian railways do not appear to have availed themselves to the same extent as railways elsewhere of the economies to be realised by this modern practice. In South Africa accessories such as speed boards and grade posts are made by welding scrap plates to old rails.

In the Mechanical Department also the abstract showed a considerable reduction in expenditure, but the principal factor in bringing this about was the reduction in train mileage. It is noted that the percentage of locomotives under repair is high and there is room for improvement in this respect. The stock of locomotives is excessive, and to a less extent this also applies to carriages and wagons. Better use of rolling stock is recommended and careful consideration should be given to proposals for the purchase of new stock. Uneconomical units should be scrapped. Better use as expressed by miles per unit should be obtained from locomotives, carriages and wagons. A normal figure of 5 per cent. of wagons under or awaiting repairs should be aimed at. As regards repair work it is not desirable to take this out of the hands of individual administrations. Construction on the other hand should be concentrated. The efficiency of the underframe shops at Tatanagar, which are controlled by the East Indian Railway, is remarkable, and better use should be made of them by concentrating certain work. Other recommendations of the committee regarding workshops are: (i) the better planning of rolling stock repairs; (ii) a better standard of supervision and training by European supervisory staff; (iii) more immediate adjustment of staff to meet fluctuations in work. In running maintenance the recommendations include the strict limitation of repair work in running sheds to running repairs proper and the better organisation of locomotive running repairs, while mention is also made of hot boxes and improved buffing gear, and a reduction in the number of examining points for carriages and wagons.

The committee considers the work of the Traffic (Transportation) Department shows efficiency and economy, and expenditure has benefited from the reduction in train mileage. Even better results could be obtained in certain directions. The speed of passenger trains in India is much criticised and some improvement could be effected. Goods trains also might be accelerated as investigation in other countries has shown that acceleration in rail transit within certain limits reduces operating costs. As all trains on the broad gauge are fitted with continuous brakes there should be no difficulty in improving speeds, either with or without some reduction in loads. The need is emphasised of a quicker service to meet the growing road competition. For the same reason the average of 100 miles a day regarded in India as reasonable transit is far too low. Improved connections are also important, and a regular scheduled timing of all goods trains. The committee was struck by the very slow turn-round of freight wagons, average wagon miles per wagon day during 1935-36 having been 35·1 and 28·1 for broad and metre gauge respectively. Although much has been done to reduce staff at stations, the hours of work regulations have counteracted savings, but more might be done in this direction, and the committee doubts whether the possibilities of economy at medium sized and larger stations have been fully explored.

Other Economies

The committee recommends the continuance of the Economy Research Organisation initiated by Mr. Pope in 1933-34, as the figures supplied by the Railway Board show that the work has been abundantly justified, and the cost of the special organisation has been insignificant in comparison with the savings effected. The campaign should be continued as there are numerous lines of enquiry which should be followed, among them being: (i) work done by permanent way, station and clerical (including accounts) staff; (ii) use of rolling stock; (iii) system of wagon interchange; (iv) printing costs. The practice of preparing an annual report on the work of the research committees should be continued.

The committee considers that the question of closing unremunerative branch lines or withdrawing unremunerative services should be further investigated. The New York office of the publicity bureau should be closed, but otherwise the organisation should continue and its activities possibly be extended in the direction of further tourist travel in India itself. The committee was impressed with the waste of accommodation involved in maintaining four classes of travel on Indian trains, and the whole question of upper class accommodation should be reviewed, with a view to the abolition of the first class on certain lines. Under this head of economy the committee makes a passing reference to capital expenditure. It considers that under this head expenditure has been incurred on too lavish a scale in the past. Circumstances in the past may have encouraged optimistic expectations and a good deal of the outlay may have been incurred at the instance of and under pressure from the Government authorities. But the population of India is poor and the traffic will bear only the lowest possible level of rates and fares. Every capital scheme should be justified and based on an annual return of 10 per cent. on the capital cost involved. Refering to the possibility of further economies in wages and salaries, the committee comes to the conclusion that a general cut would not be justified at the present juncture. Nor is there any justification, in the opinion of the

committee, for the contention that the salaries of gazetted officers are on too high a level.

Present Administration: Criticisms and Suggestions

Under this head the report says: "While we are satisfied that the economy campaign has been conducted with credit to those concerned, we feel that in certain directions it has been carried so far as to impair the efficiency of the organisation. This in our opinion is particularly the case with the higher administrative positions. . . . The reduction of administrative posts has been carried too far and has seriously impaired the personal intercourse necessary between the Railway Board, railways and the trading community." The suggestion that retrenchment has been made at the expense of the lower ranks not only is not found to be justified, but the fault may lie in the other direction and it may be that it is the retrenchment of the superior staff that has been carried too far. It is recommended that the appointment of a Traffic Member of the Railway Board be made permanent. The committee was informed that the new rates of pay had been found too low to attract the skilled European staff required in workshops.

The committee makes some detailed criticisms and suggestions with regard to accounts and audit, and recommends that the accounts officers of the State-managed railways should be railway staff and held responsible to the Agents. Comment is made on the feeling among railway administrations against the alleged multiplication of the rules and regulations imposed on the railways, and it is recommended that rules on establishment matters should be codified and simplified. Each Agent should have a deputy to deal with establishment matters. The committee considers that the divisional system of organisation is most suitable for large railways serving important points at considerable distances from headquarters, and is not more expensive than the departmental system. At the same time more attention should be paid to research in the Stores Department as well as to some decentralisation on the purchasing side, but out-station stores should be under the control of the Stores Superintendent.

The committee recommends that the existing system of statistics should be reviewed with the object of increasing their usefulness and reducing the cost of compilation. The periodical conferences of Statistical Officers should be resumed, thus ensuring contact and uniformity.

Staff Discipline and Training

The recommendations of the committee under this head are summarised as follows: "We are of opinion that a vigorous campaign should be initiated to root out dishonesty and incivility from among the staff. We urge the need of improving staff training and education, especially by (i) extending the scope of area schools; (ii) prescribing advance courses and examinations for subordinates, and selecting successful candidates for further training with a view to their qualification for special promotion." Other measures designed to inculcate in the staff greater interest in their work are recommended, and mention is made of the advantage of closer relations with the Institute of Transport and the Railway Research Service. The committee feels that some steps along the lines indicated are urgently necessary. The quality of the subordinate staff is in need of improvement and may even be deteriorating, while the process of Indianisation of the railway service as a whole is proceeding rapidly. Broadly speaking, the committee sees no reason to regret this process, but proper selection in the first place and adequate training subsequently, is obviously essential, if the quality of the new staff is to be brought to the highest possible level. Indian operatives "require careful supervision by experienced men who do not hesitate to take off their coats if necessary to show how work should be done."

Measures to Increase Revenue

The committee finds that, as a means of increasing revenue, the most urgent need is the development of the Commercial Departments of the railways, under a Commercial Manager on each administration with a status equal to that of other heads of departments. As the committee sees it "the Indian railways are well organised for conducting railway transport with economy and with operating efficiency, but they are ill-organised and ill-equipped on what is known as the commercial side—that is, on the side of creating and developing traffic, of securing and maintaining friendly relations with traders and of cultivating good public relations generally. We regard this as a serious misfortune and we hold that the first duty of the Indian railways at the present time is to take every measure possible to remedy this defect."

Among the remedial measures suggested by the committee, the proper development of the commercial organisation is placed first and foremost. The Commercial Manager should have under him a rates and fares branch, a traffic branch and a research branch. A substantial development is recommended in advertising and publicity, and an organisation to assist traders in the selection of industrial sites; special steps must be taken to select and train commercial staff, and the desirability of appointing senior men at the outset from Great Britain should be considered. On lines where the divisional system is established it is suggested that the whole commercial organisation should be lifted out of the divisional scheme and organised on the departmental principle.

As regards the possibility of increasing revenue by increasing charges, the committee says that the case for a general increase depends on trade conditions, and at the time of its visit to India these conditions did not appear to warrant such an increase. On the other hand, while individual rates should continue to be readily adjustable to meet varying conditions no general reduction in charges can be recommended.

Rates and Charges

The committee recommends that the Railway Board should initiate a special enquiry into the system of charging at schedule rates with a view to simplification. A full description is given of the system of charging, and the committee remarks on the criticism which has been directed against the structure of Indian railway rates, representing that in detail the system is cumbrous and illogical and calls for drastic simplification. Apart from its general recommendation to the Railway Board for a special enquiry the committee enters into detailed considerations of the principal features of the rating system and makes certain suggestions. Greater freedom of recourse to the Railway Board and to the Railway Rates Advisory Committee is advised, and the proceedings of the latter body should be given wider publicity.

Co-ordination of Road and Rail Transport

This subject having been specifically mentioned in the terms of reference, the committee has given it detailed attention. They find, to begin with, that road transport has not developed to the same extent in India as in other countries. The number of vehicles is small and is found to increase as roads are extended. The country should enjoy the advantage of this development but at present the regulation of road transport is inadequate and conditions are chaotic. Road development and maintenance suffer from lack of money, and, until these conditions are improved and road and rail transport are both regulated

as public services, co-ordination is unattainable. To remedy this state of things, and in anticipation of a future improvement in the condition of the roads, certain suggestions are offered. Provincial licensing and taxation are recommended subject to uniform principles enacted by the Central Government. Timetables and fares should be fixed for passenger vehicles, and statutory provision made in order that goods rates may be regulated at some future date.

Legislative effect should be given to the recommendations of the committee by means of a Mandatory Act; or failing this the Motor Vehicles Amendment Bill should be passed as quickly as possible. Railways should have full powers, on the same terms as other road users (*a*) to run road services; (*b*) to invest money in or enter into working agreements with road transport undertakings; and (*c*) to arrange road transport services through contractors. The committee considers it regrettable that railways have made no attempt to establish themselves on the roads and recommends that they should immediately examine the possibilities of engaging in road services, either directly, or by means of a financial interest in existing services, except for goods road services which should be arranged with contractors. The importance is urged of voluntary co-ordination between the railway and the more responsible elements in the road transport industry. The committee is advised that all railways do not possess the necessary powers to run road services and recommends that measures be taken, whether by legislation or otherwise to confer such powers.

Road Competition: Counter Measures

Recommendations have been made by the committee for co-ordinating road and rail transport; but co-ordination does not exclude competition, and for many years it will be necessary for the railways to reckon with this competition. The loss of railway traffic due to road competition is estimated to be in the neighbourhood of Rs. 4½ crores (£3,375,000) per annum, and if adequate measures of co-ordination are not taken this loss may be doubled.

The measures recommended by the committee to meet the competition for passenger traffic are faster passenger trains, better connections, more intensive services and improved amenities for lower class passengers. The introduction of small self-propelled rail units is not recommended, nor is any wholesale reduction in fares considered practicable, but traffic might be developed through booking agencies. Competition for goods traffic should be met by more expeditious handling, simplification of documents, collection and delivery, and the use of containers and refrigerator trucks. Here again a general reduction of rates is not recommended but the railways should continue their policy of judicious concessions in individual cases. The possibility is suggested of the adoption of a special registered transit service, such as is known as the Green Arrow service in Great Britain, where it has proved popular and successful.

Public Relations

Judging from the evidence before the committee, the Indian railways are unpopular. "It might almost be said they are the most unpopular institution in India. For this they are not wholly to blame. Railways are not popular anywhere and in India the circumstances are particularly unfavourable." The self-sufficient attitude of the days when railways were a monopolist public service is both inappropriate and shortsighted in existing conditions, with a younger and more popular rival in the field in the shape of road transport. "In such conditions a public service cannot afford the luxury of wrapping itself in its own virtue; it should go out and court popularity as assiduously as if it were selling soap or petrol." And the railways must not stop there; they must win the approval of the governing authorities as well.

One of the most important steps to be taken, in the opinion of the committee, is to secure closer liaison and better relations with the press. The Central Government has made a good beginning by setting up a Central Press Bureau and the committee now recommends that the Railway Board should appoint a press liaison officer, with an adequate staff to constitute a Railway Information Office. Both journalistic talent and a knowledge of Indian vernacular will be required, and as a first approach the committee recommends that a young and enterprising journalist from Great Britain be appointed. When selected he could usefully spend a few weeks examining the work of the press office of the British railways in London and their parallel organisations maintained by the individual companies.

Further recommendations, in addition to the institution of a Railway Information Office, are (*a*) closer contact between Agents and Chief Commercial Managers on the one hand and the trading public on the other, (*b*) the establishment of closer and more friendly relations between railways and Provincial Governments, and (*c*) the publication by the Railway Board of a popular edition of its Annual Report. The committee concludes its remarks under this head with a call for urgent action: "In conclusion we would urge once more with all the weight we can that the Railway Board and railway administrations must lose no time, and grudge no effort, in overcoming their present unpopularity and establishing a higher prestige with the public of India."

Amalgamation and Redistribution of Railways

After shortly tracing the recent history of the organisation of the Indian railways and reflecting upon the advantages and disadvantages of State management, the committee considers that the amalgamation of railways, if carried too far, will result in unwieldy administrations, and its recommendations are confined to the ultimate merging of:—

(i) the Eastern Bengal Railway with the Assam Bengal Railway, and

(ii) the Madras and Southern Mahratta with the South Indian Railway.

The assumption is that it will be the policy of the Government in course of time to take over the whole of the railway administrations. But the committee recommends that any further exercise by the Government of the option to take over company-managed lines should be deferred until the end of 1945 to give the Federal Authority an opportunity of consolidating its position.

The committee considers that no amalgamation of railways is desirable at the present time. It also considers that the policy of short options is unsound, and the Government is recommended to extend the contracts to dates as far ahead as practicable.

Drawbacks to State Management under Present Conditions

The remarks of the committee under this head are worth quoting in full:—

"The foregoing suggestions are made on the assumption that it is thought to be the proper policy for the Government ultimately to take over the management of all the Class I administrations. We do not, however, on present experience, recommend such a course.

"The history of State management in India is not encouraging and it seems clear that present methods are unsatisfactory. They tend to cramp initiative; they impose

complicated regulations and they involve an immense amount of routine correspondence. The inspection and supervision which is thought to be necessary in connection with the collection and expenditure of public money divert the attention of officers from work of greater importance and impose a heavy burden upon the finances of the railways. Judging from the considerations and contentions which have been put before us it does not appear possible in the main to avoid these disadvantages under any system of State management as at present understood in India.

" If therefore the only choice available lay between a continuance of private management and an extension of State management on existing lines, we should strongly recommend the former alternative. Indeed we should feel bound to urge a radical reconsideration of the whole question of state management and a fresh examination of the possibility of creating privately managed companies with Boards of Management domiciled in India. This suggestion was rejected by the majority of the Acworth Committee, but they rejected it in favour of a form of state management which was not adopted.

" They urged that the railways, as a State-managed concern, should be independent of the general finances; that they should be responsible for meeting their own financial obligations, and that apart from this no contribution should be made by them to the general revenues. Any surplus available was to have been put back into the business either in the form of reserves, improved services, or cheaper charges to the public.

" It is very much to be regretted that the form of public ownership recommended by the Acworth Committee, which is well known and understood and has so far been successful in Great Britain, was not adopted in India. It is fortunate, however, that under the Government of India Act, 1935, a fresh opportunity is offered."

Financial Outlook

The committee reviews in Chapter XIV of the report the history of the financial position of the Indian railways, and the institution of the Depreciation Fund in 1924-25, when the railway budget was separated from the general budget. The conclusions arrived at on this important subject, are quoted below in full:—

" We urge the need for an adequate Depreciation Fund and consider that a normal balance of Rs. 30 crores (£22,500,000) would not be excessive.

" We consider that a review of the estimated lives of wasting assets should be undertaken from time to time and that the schedule of lives should be modified in the light of experience.

" Although the nominal balance of the Depreciation Fund has grown from year to year, we do not regard this as evidence that the annual appropriations are excessive.

" We refer to an additional charge of Rs. 1¼ crores per annum which will fall on the Depreciation Fund owing to a change in accountancy, and conclude that the appropriations to the fund should not be arbitrarily reduced.

" We urge the importance of building up a general reserve fund to serve as an equalisation fund for the payment of interest charges in bad years and from which monies could be appropriated for the amortisation of capital.

" Looking to the future, we do not think that the railways, after providing for depreciation, are likely over a period of years to earn more net revenue than will serve to meet their interest charges.

" We consider that railways should no longer be looked to as a possible source of revenues for the relief of general taxation, but that every endeavour should be directed towards enabling the railways to maintain full solvency."

The committee considers, in another chapter, what would happen should the Federal Railway Authority fail to meet the interest due to the Government, the only answer to which seems to be that the authority " *must not fail.*" But in the last resort, and every possible measure being exhausted, the Government could not be denied the right of a debenture holder to appoint a receiver for the railway undertaking as a whole, or in other words, to take over the management itself.

Federal Railway Authority

Under the Government of India Act, 1935, there is to be constituted a Federal Railway Authority, to consist of seven persons to be appointed by the Governor General. The committee refers to the importance of the interests at stake, and to the necessity for avoiding political interference with the authority. The authority should equally be free from administrative interference and, as no surplus is expected to be available for general revenues, the Government should in future confine its interest in railways to that of a debenture holder.

The committee examines the methods open to the authority for raising capital and concludes that it should look to placing itself in a position of being able to raise capital in the open market. The present variable rate should be replaced by some fixed rate. Government audit of the accounts of the authority should be consistent with business principles. The authority should delegate wide powers to the Railway Board and extended personal contact is recommended between the Board and railways. The head offices of the authority and of the Railway Board should be at Calcutta with a branch office in Bombay. Finally the title of " Agent " should be replaced by that of " General Manager."

The report concludes with an acknowledgment of the assistance given by the Railway Board and by the individual administrations, and especially of the aid given by Sir Raghavendra Rau, at that time Financial Commissioner of Railways, Mr. B. M. Staig, the present Financial Commissioner of Railways, and Mr. A. E. Tylden Pattenson, Traffic Member of the Railway Board, who were deputed by the Government of India to accompany the committee on its tour.

Our Foreign Visitors in May

The Coronation Month Increase

The Travel and Industrial Development Association states that the number of holiday visitors from foreign countries during May, the month of the Coronation, showed an increase over the corresponding month of the preceding year of 14,129. The totals are as follow:—

	1937	1936
Holiday visitors	34,332	20,203
Business visitors	8,177	8,579
	42,509	28,782

There were more than double the number of holiday visitors from the U.S.A. The following table, based on the official Home Office return, gives the American and other totals:—

	1937	1936		
France	4,444	4,129	+	315
Germany	4,402	3,264	+	1,138
Holland	2,006	1,750	+	256
Scandinavia (including Denmark)	2,090	1,497	+	593
United States	10,714	5,063	+	5,651

These figures do not take into account week-end and day visitors from France and Belgium, which included many thousands of excursionists for Coronation Day, nor the very large number of overseas British visitors, not recorded at the ports.

RAILWAYS AND ROAD TRANSPORT SECTION

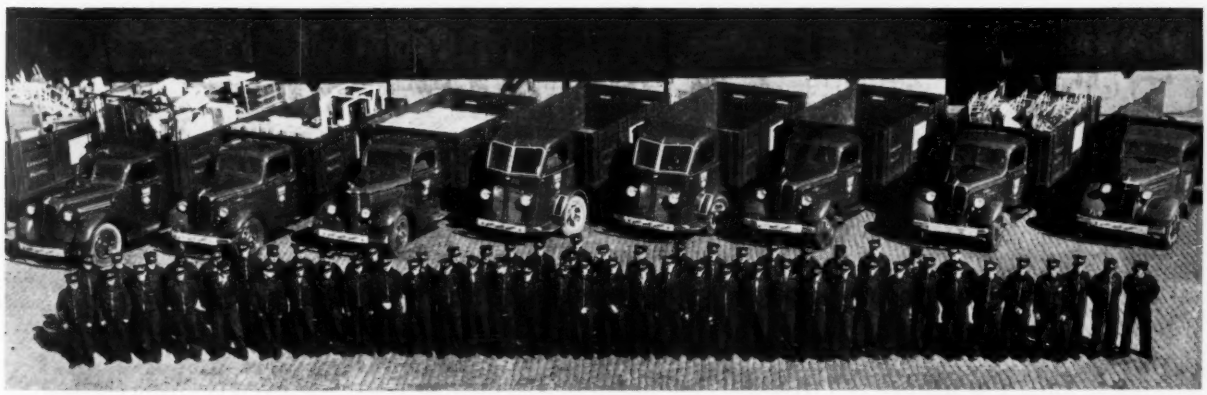
This section appears at four-weekly intervals

Progress of the German Motor Roads

THE fourth annual report of the administration of the German Motor Roads (*Reichsautobahnen*) contains some interesting figures of this growing system, of which some 1,087 km. (675 miles) of route were completed on December 31, 1936. The number of contractors' servants employed on the works reached its maximum of 121,668 in June of last year; 27½ million men-days were worked in the year, making a total of 64,620,000 since the roads were begun; and the engineering and administrative staff numbered 8,171 at the end of the year. The financing of the undertaking is now based on new principles, as it has been decided finally not to levy tolls on the traffic using the roads. Revenue therefore had to be raised in some other manner, and the duty on petrol and other fuels was raised in November, 1935. In addition, a transport tax (as reported in our Road Transport Section for February 12 last) was imposed on commercial motor services in October, 1936, and a further tax on oils in December. An operating account appears in the report for the first time, from which it is seen that receipts from service stations came to 26,600 RM., and other receipts to 29,108 RM., a total of 55,708 RM. Expenses were: Management and patrolling 250,518 RM.; removal of snow 186,095 RM.; and maintenance 304,700 RM. This total of 741,313 RM. gives an operating deficit of 685,605 RM., covered on the debit side of the profit and loss account from money raised by the above-mentioned taxes. The capital account shows an adverse balance of 711,314,084 RM.; 713,930,496 RM. were expended and only 2,616,412 RM. credited to this account. The three largest items of expenditure were: excavation work 18,752,659 RM.; road foundation work 90,617,181 RM.; and road surfacing and finishing 176,526,099 RM. The total expenditure since work began is now nearly 1,407,000,000 RM. In the profit and loss account the only item on the credit side is the income from the fuel and transport taxes, namely, 59,481,358 RM. On the other side we find 685,605 RM. deficit on the operating account; 8,500,000 RM. for certain interest charges on the capital invested in works completed in the year; 50,000,000 RM. placed to reserves; and 295,753 RM. credit balance carried forward. The initial capital figure was 50,000,000 RM. The asset value of the undertaking is put at 1,406,984,254 RM. with sundry assets at 5,431,847 RM. The first three fuel reservoir installations have been opened—at Darmstadt, Rosenheim, and Holzkirchen—others are in hand and the first regular maintenance depots were also opened during 1936. There were 2,660 bridges of all sizes finished by the end of the year and work was in hand on 851 more.

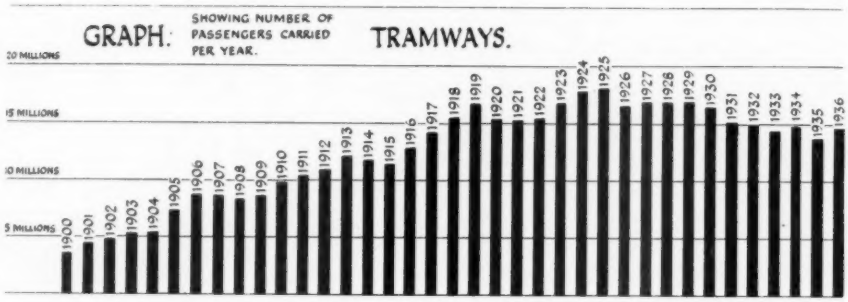
Southdown Motor Services

WITH a fleet of just under 700 buses, the Southdown Motor Services Limited ranks as one of the larger provincial bus companies, and one moreover which has always been characterised by efficient management, excellent service to the public, and consistently good relations between management and staff. The details of the company's progress, as given by Mr. Sidney E. Garcke, the Chairman, at the recent annual meeting are therefore of more than usual interest. The total of passengers carried last year exceeded 50,000,000, and the revenue showed the satisfactory expansion of over £50,000. Mr. Garcke emphasised that the directors of a large bus company do not forget they have a public duty in addition to their responsibility to the shareholders. Out of the Southdown Company's total of 94 services no fewer than 63 fail to yield a net profit. Some of these services contribute traffic to those that pay, but many could be suspended without damage to the remainder. But the company takes the view common to the responsible sections of the bus industry that it must serve properly the whole of the area it covers. The wages question has been much in the



Part of the new fleet of 92 motor lorries recently introduced by the Canadian Pacific Cartage Department at Montreal, for collection and delivery service (*see note on page 1085 of our issue of June 4*)

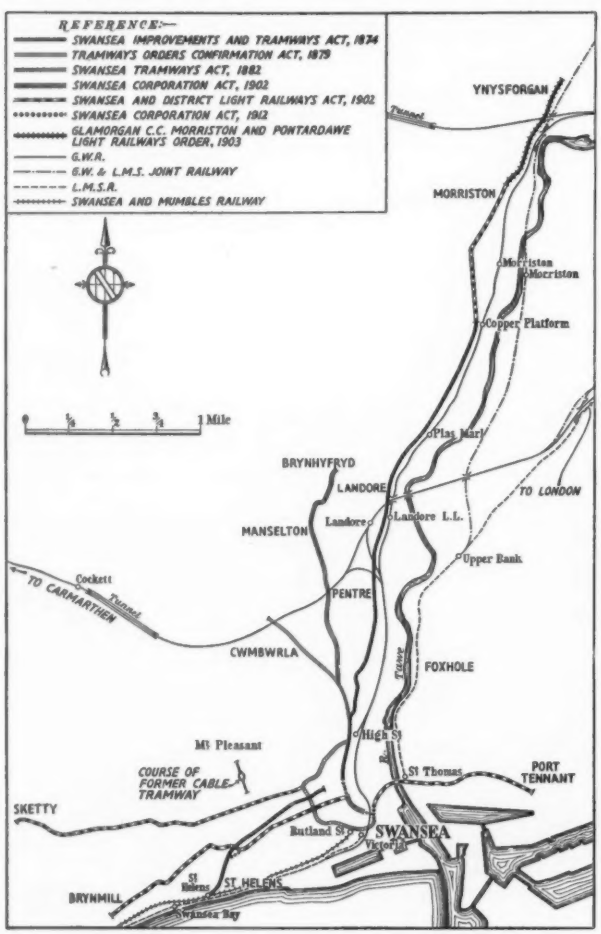
public eye of late, and therefore it is particularly satisfactory that Mr. Garcke was able to say that the Southdown staff—which numbers approximately 2,200 men—is well paid, and contented. The average wages earned by the drivers are just under £4 a week, and the conductors take home substantially more than £3. That Southdown employment is good is exemplified by the long time the men stay with the company. Substantially more than half the employees are now in receipt of a long-service bonus as a result of having worked for the company for upwards of five years, while no fewer than one-third have served more than ten years, and a few have given practically life-long service.



Passengers carried by the Swansea tramways from 1900 *to* 1936

The Swansea Transport Revolution

ON Monday night the final step was taken in the complete abandonment of street tramways in Swansea (to which we referred in this Section on June 4) when the Sketty, Port Tennant, and Brynmill services were withdrawn. Apart from the size of the undertaking concerned, the changeover is of more than usual interest and fully justifies the term "revolution" that has been applied to it by the local press. Not only has rail transport been abandoned, but the replacing diesel-engined A.E.C. buses have been re-routed so as to increase the fluidity of traffic in the congested and in some cases narrow streets of the central parts of the town. One-way workings have been adopted over certain portions of the journeys, and our experience of the first day's traffic under the new conditions fully endorsed the widely-held local impression that congestion and delay had been reduced. From another viewpoint the new era in local transport is also notable, for the tramway abandonment has been carried out by the cordial co-operation of the Swansea Corporation with the operating company—the Swansea Improvements & Tramways Company. The tramway system has thus closed its career in an atmosphere of more friendly relationship with the local authorities than has obtained through much of its working life, for misunderstandings have arisen ever since the company was formed, and feeling ran high before even the first section of line was opened in 1878. Electric traction was introduced at the end of June, 1900, and Swansea was thus the first town in Wales to have electric tramways. The accompanying graph shows the progress in terms of passengers carried per annum, ranging from 4½ millions in 1901 to 14¾ millions in 1936, with the highest peaks during the boom years of 1924-25.



Sketch map showing the Swansea tramways at their maximum mileage, and the powers under which the lines were built

INSTITUTION OF AUTOMOBILE ENGINEERS.—On Friday, June 11, the headquarters of the I.A.E. were transferred from Watergate House to 12, Hobart Place, London, S.W.1. The telephone number is SLOane 2191, and the telegraphic address Autinst, Sowest, London. The I.A.E. has recently issued a memorandum of professional rules and practice of members practising as consulting engineers, which has been compiled in order to regulate the practice of members acting in a consultative capacity. We understand that copies have been sent to insurance companies and other bodies likely to be interested. The Secretary of the I.A.E. is, of course, Mr. Brian G. Robbins.

Publications Received

The Highway Beautiful (Roads as they should be). London: The Automobile Association, Fanum House, New Coventry Street, W.1. 9 in. × 6 in. 33 pp. Fully illustrated. Paper covers. Price to non-members 1s. net.—This is a publication of outstanding interest to every motorist and to authorities responsible for road construction and maintenance. It is issued by the A.A. in conjunction with the Roads Beautifying Association. Fully illustrated by photographs of main roads at home and abroad where beauty and utility are combined, the booklet outlines the ideal highway from the point of view of all road users. The object of the booklet is to be constructive and not critical; it preaches by illustration of what has been achieved, and can therefore be achieved again.

The Scottish Motor Traction Group

Some details of the development of the original S.M.T., and the evolution of the present group in conjunction with the L.M.S.R. and L.N.E.R. Seasonal traffic fluctuations are shown graphically

By R. BEVERIDGE, Commercial Manager, Scottish Motor Traction Co. Ltd.

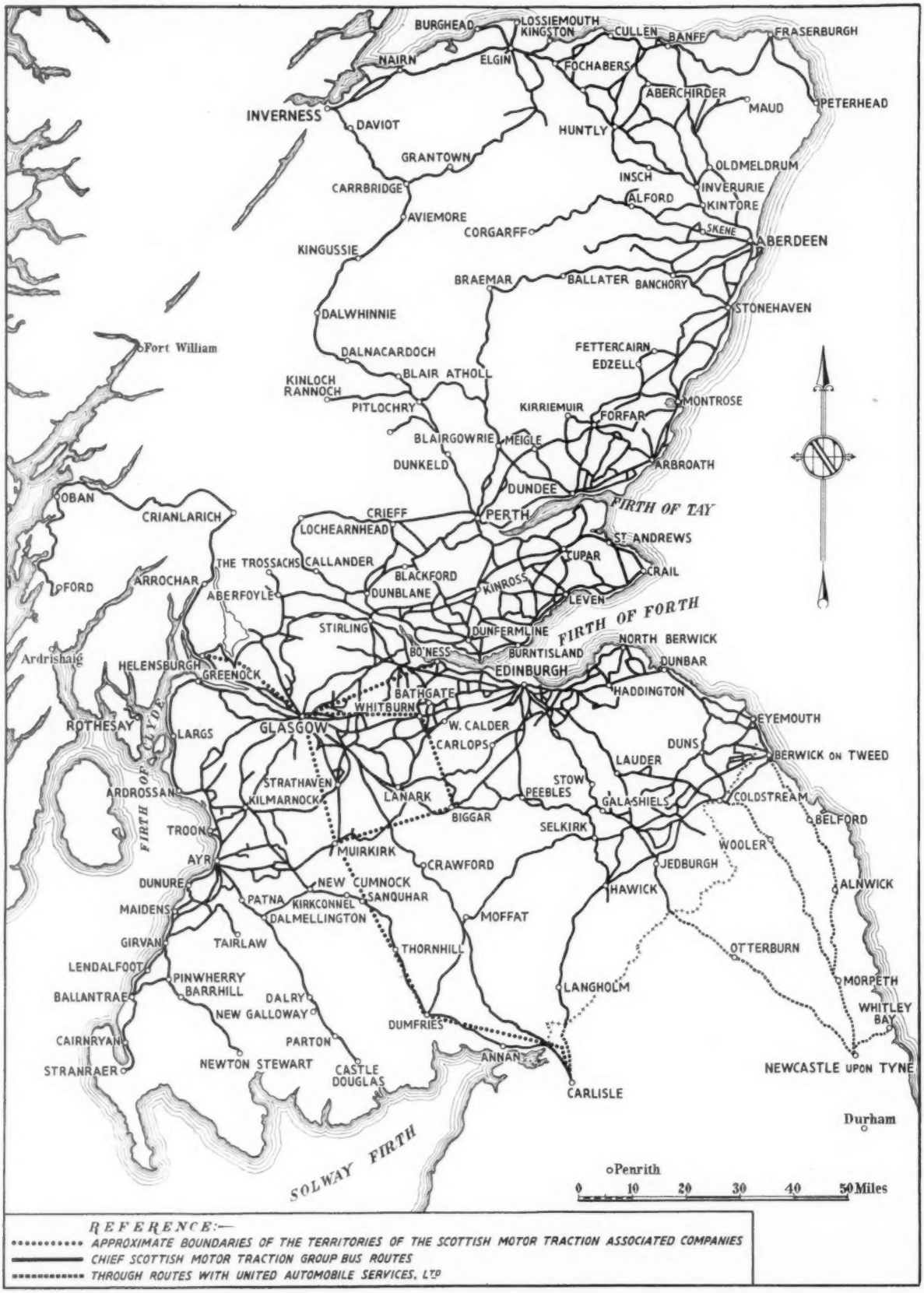
THE first regular country services of motorbuses in Scotland appear to have been those instituted in 1904 by the old Great North of Scotland Railway in Aberdeenshire, and served districts which previously had suffered from inadequate transport. The Scottish Motor Traction Co. Ltd. came into being shortly after the railway services had been started. It was incorporated in Edinburgh on June 14, 1905, and in the same year opened its first service on a 2-mile route between Bathgate and Armadale, which was soon abandoned. Then a new service was begun, from Edinburgh to Corstorphine (a distance of 4 miles), and was shortly followed by another to Loanhead (a distance of 6 miles), and by a summertime service from Edinburgh to the Forth Bridge.

During the ensuing nine years (*i.e.*, up to 1914) progress was slow, and when the war broke out the S.M.T.—which was easily the largest company of its kind in Scotland—possessed only 35 vehicles. During the war petrol was very strictly rationed, and in order to keep its services running, the S.M.T. had to resort to gas as a fuel. Fortunately, the routes were short in these days and consequently intermediate filling stations were not necessary. On the whole, the vehicles ran quite satisfactorily on gas, in fact, its use was continued for some time after the war, as it was actually cheaper than petrol at that time. One of the illustrations shows an S.M.T. bus of that period fitted with a gas bag on the roof.

These bags naturally suffered a good deal through wear and tear, and I have recollections of a driver whose engine stopped on the road one stormy night, owing to the gas bag having flown right off the vehicle, and I may add that next day it was discovered in a hedge fully a mile away from where it left the bus. Incidents of this kind were fortunately rare, and the old gas bags were the means of giving the people around Edinburgh a service which they could not otherwise have had during the war years.

Early chain-driven Maudslay bus on an Edinburgh circular route

Single-deck Lothian with gas bag during the war period


BURGHEAD
LOSSIEMOUTH
KINGSTON
CULLEN
BANFF
FRASERBURGH
NAIRN
ELGIN
FOCHABERS
ABERCHIRDER
MAUD
PETERHEAD
INVERNESS
DAVIOT
HUNTLY
GRANTOWN
OLDMELDRUM
INSCH
CARRBRIDGE
ALFORD
INVERURIE
KINTORE
AVIEMORE
CORGARFF
SKENE
ABERDEEN
KINGUSSIE
BRAEMAR
BALLATER
BANCHORY
STONEHAVEN
DALWHINNIE
Fort William
DALNACARDOCH
FETTERCAIRN
EDZELL
KINLOCH RANNOCH
BLAIR ATHOLL
PITLOCHRY
KIRRIEMUIR
MONTROSE
FORFAR
BLAIRGOWRIE
MEIGLE
DUNKELD
ARBROATH
OBAN
DUNDEE
FIRTH OF TAY
CRIANLARICH
CRIEFF
PERTH
LOCHEARNHEAD
ST ANDREWS
CUPAR
THE TROSSACHS
CALLANDER
CRAIL
FORD
ARROCHAR
BLACKFORD
KINROSS
ABERFOYLE
DUNBLANE
LEVEN
FIRTH OF FORTH
STIRLING
DUNFERMLINE
NORTH BERWICK
Ardrishaig
BO'NESS
BURNTISLAND
HELENSBURGH
GREENOCK
EDINBURGH
DUNBAR
BATHGATE
HADDINGTON
WHITBURN
ROTHESAY
LARGS
GLASGOW
W. CALDER
CARLOPS
EYEMOUTH
DUNS
LAUDER
BERWICK ON TWEED
STRATHAVEN
STOW
ARDROSSAN
KILMARNOCK
LANARK
PEEBLES
GALASHIELS
COLDSTREAM
FIRTH OF CLYDE
BIGGAR
BELFORD
TROON
SELKIRK
WOOLER
MUIRKIRK
AYR
CRAWFORD
JEDBURGH
DUNURE
NEW CUMNOCK
HAWICK
ALNWICK
PATNA
KIRKCONNEL
SANQUHAR
MAIDENS
DALMELLINGTON
MOFFAT
GIRVAN
TAIRLAW
THORNHILL
OTTERBURN
LENDALFOOT
PINWHERRY
BARRHILL
LANGHOLM
MORPETH
BALLANTRAE
DALRY
NEW GALLOWAY
WHITLEY BAY
DUMFRIES
CAIRNRYAN
PARTON
ANNAN
NEWCASTLE UPON TYNE
STRANRAER
NEWTON STEWART
CASTLE DOUGLAS
CARLISLE
Durham
SOLWAY FIRTH
Penrith
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REFERENCE:—
APPROXIMATE BOUNDARIES OF THE TERRITORIES OF THE SCOTTISH MOTOR TRACTION ASSOCIATED COMPANIES
CHIEF SCOTTISH MOTOR TRACTION GROUP BUS ROUTES
THROUGH ROUTES WITH UNITED AUTOMOBILE SERVICES, LTD

This particular illustration has a further interest, in that it shows an unusual type of vehicle introduced by the S.M.T. in 1912. At that time many motor manufacturers did not make a special chassis for bus work, and buses consisted virtually of a bus body mounted on a lorry chassis, but Sir William Thomson—or, Mr. Thomson as he then was—decided that this was not good enough, and he proceeded to design the vehicle called the Lothian, which was the standard in the S.M.T. fleet for some fourteen years. The fact that it was fourteen years before it went out of date, shows that when designed, it was well ahead of its day. It was the first type to have the driver alongside the engine.

Post-War Competition

The war, of course, arrested progress, but immediately hostilities ended the growth of passenger transport by road was extremely rapid. This expansion was due to:—

1. The realisation of the value of mechanical road transport during the war.
2. The demobilisation of a large body of men who had been working on this form of transport during the war.
3. The large number of second-hand vehicles flung on the market by the military authorities.

During this post-war period the established bus companies extended their operations as speedily as they could, and new companies were formed all over the country. Certain of these companies were well managed and progressed rapidly, although they had in some cases a hard struggle for some time owing to their success inducing other companies or individuals to start up in opposition. The introduction of fast pneumatic-tyred 14- and 20-seaters from America, which could be had on very reasonable hire-purchase terms, gave a further impetus and indeed created something like chaos in the industry, as at that time there were practically no regulations and new comers could start where and when they liked.

The S.M.T. extended its territory in 1920 by buying the business of the Dundee Mechanical Transport Company, which worked services from Dundee to Forfar (14 miles), Inchture (12 miles), and Arbroath (17 miles), but for many years this remained an isolated branch of the organisation. Most of the expansion took place in the neighbourhood of Edinburgh, and in the territory southward to the English border. In April, 1923, the business of William Young & Sons of Bathgate was taken over and on July, 1925, a controlling interest was acquired in the Peebles Motor Co. Ltd. In the Border country, control was secured in April, 1926, of Brook & Amos Limited of Galashiels, a company working about 50 buses. The S.M.T. interest in this area were further strengthened in the following year by the purchase of the businesses of the Border Motor Transport Co. Ltd., Hawick; William Ramsay, Peebles; and John Turnbull, Kelso.

These acquisitions rounded off an area covering the south-east corner of Scotland. Meanwhile, in October, 1926, the S.M.T. purchased the business of Joseph Tennant & Sons of Armadale, who had been working a bus service between Bathgate and Glasgow, and thus obtained an entry to the latter city. The S.M.T. also took over the undertaking formerly owned by Mr. J. D. Hendry of Coatbridge which had become the Glasgow—Bathgate and Coatbridge—Glasgow services of Henry Lawson Ltd., and so held a very strong position in this area. Joining up with the existing Edinburgh—Bathgate route, the new acquisitions placed under one control services from Edinburgh to Glasgow, and the S.M.T. instituted a through service every 20 minutes. The journey time was 2 hours 50 minutes and the fares 2s. 9d. single and 4s. 4d. return. Before the beginning of 1927 such success attended the venture that an hourly limited-stop service was superimposed, performing the journey in 135 minutes. Higher fares were charged than on the ordinary service buses (4d. on the through journey) and only seven intermediate stops were made, namely, at Broxburn, Uphall, Bathgate, Armadale, Airdrie, Coatbridge, and Shettleston.

Agreement with Main-Line Railways

In 1928, when the main-line railways obtained their general road powers, the Scottish Motor Traction Company was thus the most important undertaking of its kind in Scotland, and shortly afterwards the L.N.E.R. and L.M.S.R. arrived at an understanding with the S.M.T. with a view to joint railway and road control of the bus services covering a large part of the country. With this object the S.M.T. secured control in February, 1929, of W. Alexander & Sons, Ltd., Falkirk; the Midland Bus Services, Airdrie; and Stewart & McDonald Limited, Carluke. The Glasgow General Omnibus & Motor Services Limited was also associated with the group through Sir William (then Mr. W. J.) Thomson becoming Chairman of the Glasgow company in June, 1928.

Shortly afterwards the S.M.T. was re-constituted, a new company of the same name being incorporated in Edinburgh on August 15, 1929, with an increased capital in which the London Midland & Scottish Railway Company, and the London & North Eastern Railway Company each took approximately one-quarter of the shares. From that date the co-ordination of the bus services in Scotland began. The Scottish General Omnibus Co. Ltd., which, with its subsidiary companies operated round about Falkirk and in Fifeshire, was bought in March, 1930, on behalf of Alexander; and the Scottish General Transport Co. Ltd. (an associate of the B.E.T.) which worked in Ayrshire and Renfrewshire, was taken over in November, 1931. Practically all the shares of the Glasgow General company were bought in May, 1930, by the L.M.S.R. and subsequently transferred to the S.M.T.

Areas of Associated Companies

The way was thus cleared for a comprehensive co-ordination scheme, and Scotland was apportioned as follows:—

The parent company, the Scottish Motor Traction Co. Ltd., took the territory south of the Forth and east of a line Bo'ness—Glasgow and Glasgow—Biggar—Carlisle.

W. Alexander & Sons Ltd., took everything north of a line Bo'ness—Glasgow and Glasgow—Helensburgh. The Scottish General Omnibus Company and its associates, which were included in the Alexander organisation in March, 1930, comprised *inter alia* the Scottish General (Northern) Omnibus Co. Ltd. that took over the old Great North of Scotland (L.N.E.) Railway buses in August, 1930.

The Western S.M.T. Co. Ltd., took everything south of the Clyde and west of a line Glasgow—Muirkirk, Muirkirk—Dumfries, and Dumfries—Carlisle. This company is the old Scottish General Transport Co. Ltd., renamed in June, 1932, and incorporating the Midland Bus Services Ltd. and other S.M.T. and L.M.S.R. associates in its territory.

The Central S.M.T. Co. Ltd. took the territory inside a line Glasgow—Biggar, Biggar—Muirkirk, and Muirkirk—Glasgow. This company is a re-naming on June 18, 1932, of the Glasgow General Omnibus & Motor Services Limited, and included from the beginning of that year the undertakings of Stewart & McDonald Limited, and J. W. & R. Torrance Limited, two businesses acquired in 1930 by the L.M.S.R. as a preliminary to the Lanarkshire group scheme. In September, 1934, the Central S.M.T. Company

took over the control of the Lanarkshire Traction Company, which had been acquired in July, 1932, by the S.M.T.

Since these companies were grouped in this way they have acquired a large number of businesses of various sizes, numbering in all approximately 150.

Tramway Abandonment

In addition, arrangements have been come to with the Burghs of Perth, Kirkcaldy, Ayr, and Kilmarnock whereby these Burghs abandoned their tramways and one or other of the associated bus companies supplied a bus service in its place. Since 1928, also, the tramways previously operated by the Falkirk (District Traction Company have been taken over and replaced by buses, and the tramways in Dunfermline and Fifeshire belonging to the Fife Tramway Light & Power Co. Ltd. (including the Dunfermline & District Traction Company) have been acquired and will shortly be replaced by buses to be run by W. Alexander & Sons Ltd.

The position today is that the Scottish Motor Traction Co. Ltd. with its associated companies (*i.e.*, companies in which it holds a controlling interest) have in Scotland a fleet of fully 3,000 public service vehicles.

This co-ordination could not have taken place on so comprehensive a scale but for the passing of the Road Traffic Act, 1930. Previously in Scotland there were practically no effective regulations, and, apart from Edinburgh, Glasgow, and Lanarkshire, anyone could put a bus on the road and run when he liked, and charge what fares he liked; consequently many old operators found their bus services being ruined by pirates running just ahead of their good journeys at cut fares, which they could afford to charge because they only ran when loads were good. It was useless to buy out such an operator because his place was immediately taken by another. Glasgow and Lanarkshire had regulations but they simply amounted to the fact that a vehicle had to be licensed, but there was no control of fares or timetables. Under the Act of 1930 an operator may take it as a foregone conclusion that, as long as he runs his services satisfactorily, he is not likely to be embarrassed by some new operator being granted a licence to run on the same route.

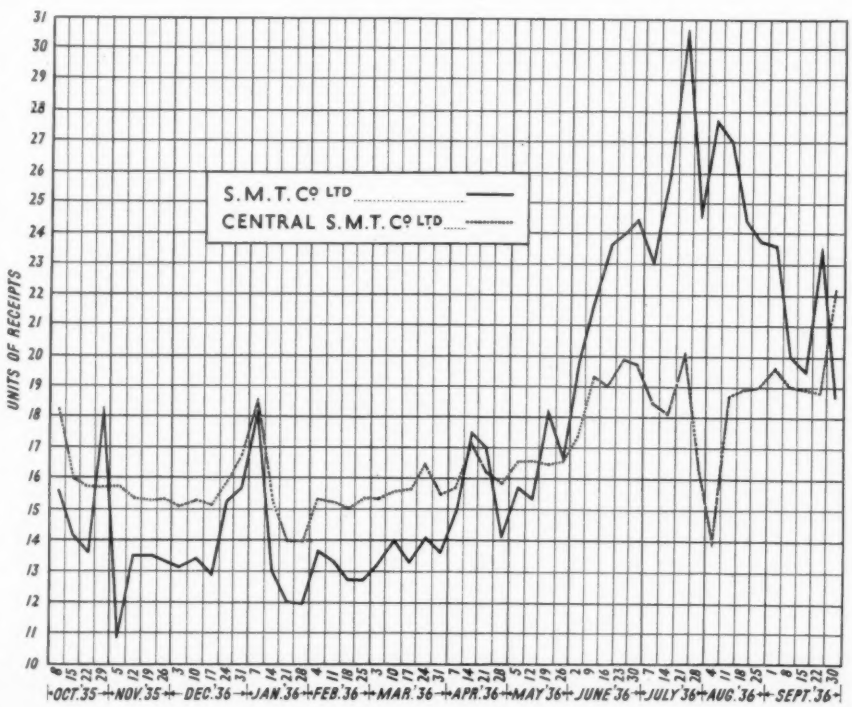
Operating Conditions

While bus routes are thick about Edinburgh, Glasgow, and Fifeshire, and also fairly thick up the coast to Aberdeen and to the north-west of Aberdeen, there are large tracts of country where the routes are simply long spurs along a main road, and most of these have very meagre services on them, usually about two each way a day. The reason for this is that, except for large towns, the population in Scotland is sparse. The population per square mile in England (apart from the administrative County of London) is 647·8 a square mile, as against Scotland (omitting Glasgow) at 126·0 a square mile; even if Glasgow is included it comes only to 162·5 a square mile. It will be evident from these figures that the problem of the bus operator in Scotland is very different from that of his friends in England. Naturally, the heaviest services are in the Lanarkshire area where the population is greatest, and on the routes in that area we have as many as 28 journeys an hour, whereas on some of our other routes—such as Elgin—Grantown—we have a bus only every four hours. Between Perth and Inverness there are but two buses a day, and these run close together, as one is an Inverness—Edinburgh bus and the other an Inverness—Glasgow bus.

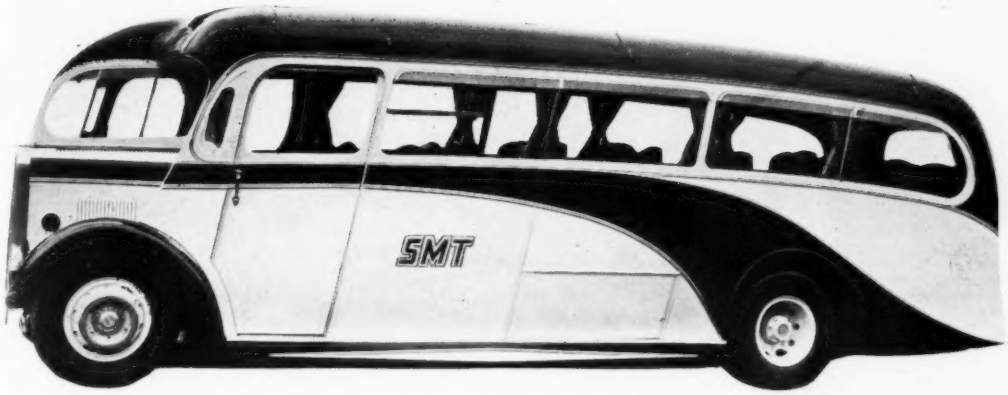
Seasonal Fluctuations

Operating problems vary considerably between one company and another in the S.M.T. group, and a good example of this may be seen from one of the accompanying graphs which shows the comparative weekly revenue of two of the associated companies. The Central S.M.T. Company operates in the thickly populated area of Lanarkshire, while the parent company—the Scottish Motor Traction Co. Ltd. itself—operates from Edinburgh. With the Central S.M.T. curve the deep depression at the beginning of August may be disregarded, as this was caused by a partial two-day strike which the company unfortunately experienced. The peak in the last week of September may also be ignored, as that figure was influenced by extra days in the last week of the Central S.M.T. Company's financial year. It is thus seen that the company has a remarkably steady " power factor " as the power-house engineer would term it.

The S.M.T. curve shows a peak at the end of October. and a depression in the beginning of November, which result solely from the fact that the financial year of that company ends on October 31, and this causes a long and a short week. The isolated peaks represent the New Year holiday, the spring holiday, the May holiday. and the autumn holiday in September. The range of mountains from the beginning of June to the end of August represent the summer holiday traffic: after London. Edinburgh is the greatest tourist centre in the Kingdom.



Comparative revenue fluctuation of two associated companies, in " units of receipts "

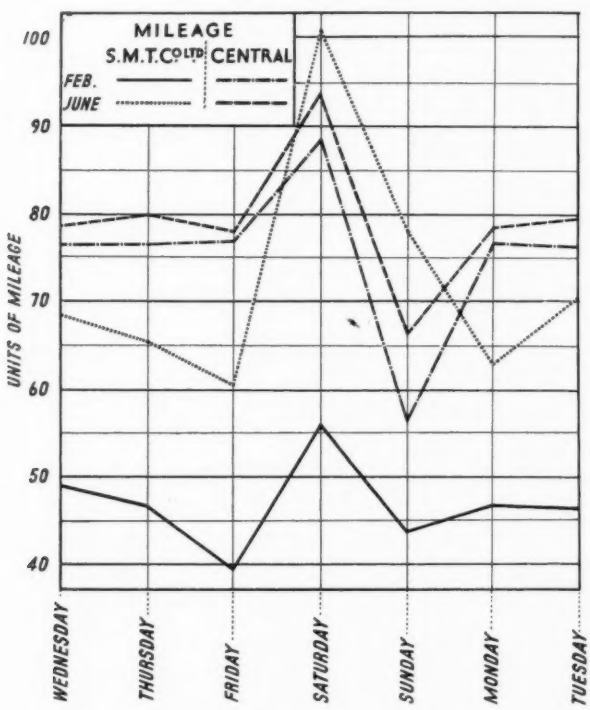


Modern S.M.T. luxury coach on long-distance service

The income of the parent company in the summer is more than double what it is in the winter, and consequently the company has to have in stock a large number of machines which are required for only about three months in the year. This represents a considerable amount of capital lying idle for eight or nine months each year, and of course these vehicles have all to be garaged, and that means additional expense. It also means a big fluctuation in staff, and a temporary staff is never so efficient as a regular one.

Daily Fluctuations

In addition to the seasonal, we are troubled with daily fluctuations, and the second graph shows these for the S.M.T. and the Central S.M.T. The weeks taken are in the months of February and June, and consequently represent the winter and summer conditions. The fluctuations of the S.M.T. are seen to be much more violent than those of the Central S.M.T., and the peak on Saturdays shows that some of the extra vehicles which are required for summer services are not needed even in the summer time except on Saturdays—in other words, such buses are used only for about twelve days in the year.



Day-to-day mileage fluctuations of two associated companies, in "units of mileage"

Length of Services

The modern tendency is to make ordinary stage-carriage services as long as possible by linking up several to form one through-service. For example, the United Automobile Services Limited had a service from Newcastle to Morpeth and Alnwick, and the Scottish Motor Traction Company one from Edinburgh to Dunbar. The U.A.S. extended its service northward to Berwick-on-Tweed and the S.M.T. extended southward to the same place; of recent years each company has run its buses right through between Edinburgh and Newcastle, but this service, although the route is 126 miles long, is simply a stage carriage service, and the number of through passengers carried on it is extremely small. Similarly, as already mentioned, the old S.M.T. service on the Bathgate route was gradually extended by the purchase of other companies until it reached Glasgow. This is also purely a stage carriage service, with 54 fare stages in a distance of 45 miles. The advantage of running services of this length, instead of a number of short ones, is that they are cheaper to operate owing to the cutting down of waiting time and the elimination of mileage at the turning point. The latter may seem slight, but a journey of 100 yd. or so to turn, multiplied by a number of journeys a day (of 365 days to the year) makes quite a difference in the annual dead mileage. Through running has also an advantage to the travelling public as it eliminates a change of vehicle. If the buses did not run through Berwick-on-Tweed, anyone living at the north end of Berwick wishing to get to Spittal on the south side of the Tweed would require to change at Berwick, and, rather than do this, would walk part of the way.

The buses on such long-distance services fit in with shorter-distance buses near the large towns and are not superimposed on the local services. An example of the thinning out of services the farther they get from the centre of population is provided by the Edinburgh to Berwick-on-Tweed route where there are 13 buses an hour between Edinburgh and Musselburgh (which is 6 miles out); 5 buses an hour to Tranent (12 miles out); 3 buses an hour to Haddington (18 miles out); 2 buses an hour to Dunbar (25 miles out); and one bus an hour to Berwick-on-Tweed (58 miles).

(To be continued)

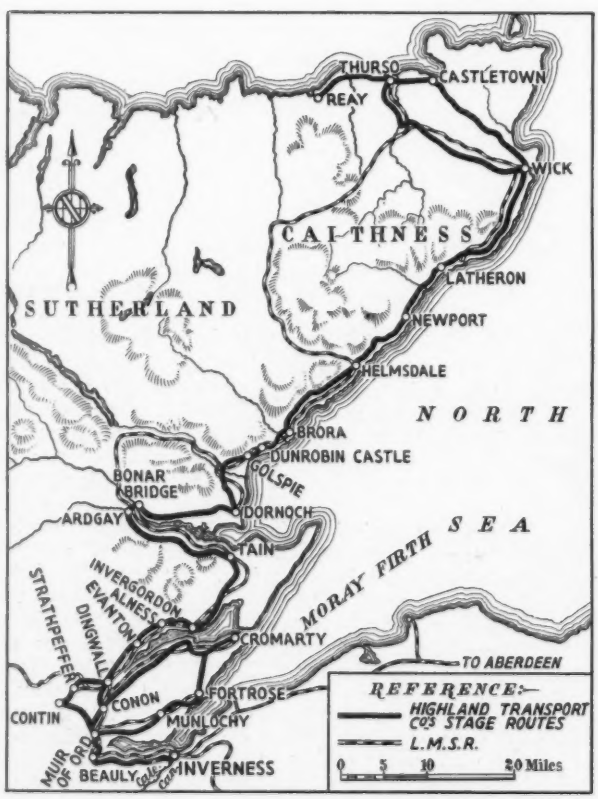
Highland Transport

This undertaking links Inverness with the sparsely-populated extreme north of Scotland

NORTH of the Caledonian Canal are the sparsely populated counties of Ross & Cromarty, Sutherland, and Caithness, where meagre traffic, often indifferent roads, and severe climatic conditions in winter, conspire to make the provision of regular road transport a task of unusual difficulty. The eastern side of this area is served by the main line of the L.M.S.R. to Wick and Thurso, and also by the road services of the Highland Transport Co. Ltd. and between them excellent facilities are afforded, although the operating companies do not derive any substantial return on their invested capital.

The Highland Transport Co. Ltd. had its origin in a company called the Inverness & District Motor Services, Ltd., which was incorporated in Edinburgh on April 13, 1925. Early in 1930 arrangements were concluded for the undertaking to be developed in conjunction with the L.M.S.R., and on April 8, 1930, the Highland Transport Co. Ltd. was registered as a public company with a nominal capital of £50,000 in £1 shares to take over the older business. It was arranged that the L.M.S.R. should take up 50 per cent. of the issued capital of 35,000 ordinary shares, and should be represented on the board of directors.

A diesel-engined 32-seater Albion as used by the Highland Transport Co. Ltd. for stage-carriage work. The body is by Cowiesons, of Glasgow



Sketch map showing the regular stage-carriage services

From headquarters in Inverness, the company developed its business in four sections, two of which were isolated from the main services. These comprised a trunk route from Inverness to Brora; the Black Isle section, linking Cromarty with the main-road service; the Caithness services; and the Isle of Skye services. The Caithness services between Wick and Thurso were amplified in August, 1932, when the Highland Transport Co. Ltd. bought the business of A. Robertson & Son of Wick; the purchase added 38 route miles to the company's system and a valuable mail contract in respect of the route between Wick and Helmsdale. The next step was to bridge the 12-mile gap between Brora and Helmsdale, and the company's Chairman, Sir Alexander McEwen, announced the intention of providing a continuous service between Inverness and Wick at the same time that he made public the purchase of Robertson's. The through route came into operation on April 1, 1933, and thus provided the final link in a chain of bus services extending from Land's End to John o' Groats.

The Skye branch was for some considerable time a source of great concern to the company, as its trading resulted in a heavy loss. The services in the island provided necessary connections with the train service to the Kyle of Lochalsh, but it was felt that such routes —far isolated from the company's headquarters in Inverness—could be maintained more economically by a local operator, and arrangements were therefore concluded for the sale of the Skye business to Mr. A. Nicolson of Portree (trading as the Skye Transport Company) for £4,500. The transfer became effective on March 30, 1935, and the Highland Transport Co. Ltd. thereupon secured the sanction of the Court of Session to reduce its capital by repaying 3s. a share to its shareholders. The com-

A Cowieson 32-seater semi-coach body on an Albion diesel of the Highland Transport Co. Ltd.

pany's issued share capital is thus now £29,750 in 35,000 fully-paid ordinary shares of 17s. each.

At the present time, therefore, there are no isolated sections to the business, but the farthest stage point is no fewer than 175 miles distant from the company's headquarters in Inverness. The total stage route mileage is 360, and this is served by some 45 vehicles (both buses and coaches) mainly of A.E.C. and Albion manufacture, of which about 20 are diesel-engined. The bodies are finished in an attractive livery of red and ivory, and the fleet name "Highland" that was formerly carried on the sides has now been replaced by a golden eagle, symbolic of the Highlands. Apart from the main garage at Inverness, vehicles are housed at Dingwall, Fortrose, Invergordon, Dornoch, Helmsdale, Dunbeath, Wick, and Thurso. No severe gradients exist for the first 100 miles north of Inverness, but the 38 miles from Helmsdale to Wick are very heavy going, and, every winter, services are severely impeded by heavy snow.

Numerous small mail contracts are held, the principal of which is that between Wick and Helmsdale to which reference has already been made. Prepaid parcels are carried on the buses at owner's risk. They are received by the company's offices and agents and may also be delivered to, and collected from, conductors *en route*. Interavailable bus and rail return tickets are in operation on most routes, and on summer Sundays the company's bus service replaces the trains between Inverness and Wick, taking approximately 7¼ hr. against the 5 hr. of the best train.

The company's workshops in Inverness carry out complete engine and chassis overhauls, and also undertake coachwork re-building and modernisation.

Tunnel Clearances

THE Blackwall and Rotherhithe tunnels under the River Thames present peculiar operating problems to the London Passenger Transport Board inasmuch as both are on consistently busy routes which in consequence call for big capacity vehicles, but the dimensions of the tunnels prohibit the use of normal type double-deckers. Blackwall tunnel, opened in 1897, is the more difficult, for it is over a mile in length; its internal diameter is 24 ft. 3 in.; its maximum height from the roadway to the loading gauge line is 15 ft. 6 in.; and its minimum height is approximately 14 ft. 9 in. Unfortunately the camber of the roadway, the irregular surface of the granite setts, and angular bends preclude full advantage being taken of these measurements. Single-deckers alone were used until 1927, when a modified NS vehicle, with an inswept top deck and knifeboard seating, was introduced. London Transport has now designed and built a new low-loading, double deck body for mounting on the A.E.C. oil-engined Regent long-wheelbase chassis; this seats 55 persons (30 on the upper deck and 25 on the lower)—an increase of 11 over the NS vehicles. The basic design of the new body is similar to that of London Transport's normal STL bus, and the chief modification is in the upper deck roof. In order to ensure sufficient clearance when the vehicle is turning corners or passing other traffic, the front framework has been sloped backwards and the side frames sloped inwards. The section of the upper deck roof has been amended, and whilst the centre gangway headroom of the standard STL has been maintained, the headroom over the transverse seats is less. This has meant re-designing the staircase, which enters the upper deck at the centre gangway where there is the maximum headroom.

Special "tunnel" type body on A.E.C. diesel-engined Regent chassis, emerging from Blackwall tunnel

Rail and Road Goods Transport in Scotland

(See article on page 28)

Above : Loading sugar beet into an L.N.E.R. lorry for road-rail transport to market. This is one of the heaviest traffics dealt with by the company's lorry services

Right : Farm horses cheerfully "going for a ride" on an L.N.E.R. lorry engaged in a large farm-removal job

Left : Loading the whole of the farm furniture, stock, and implements into L.N.E.R. road-rail containers and lorries

MacBrayne and the West Highlands

The extensive road activities of a famous railway-associated shipping company

ALTHOUGH the name of MacBrayne is associated primarily with shipping services, this famous firm has made the provision of transport in the West Highlands of Scotland peculiarly its own, and in so doing has built up an important fleet of road motors. It was in 1878 that Mr. David MacBrayne took over the control of the West Highland steamers, and the undertaking continued as a private proprietary business until December 13, 1905, when the first limited company named David MacBrayne Limited was incorporated in Edinburgh.

Road motor services from Inverness and Fort William were inaugurated about 1906/7, and MacBrayne buses supplied road facilities when the Fort Augustus railway line was temporarily closed from October 31, 1911, to August 1, 1913. Towards the end of 1913 an Oban—Ardrishaig route was opened, and mails were carried on this route from the beginning of 1914. In those early days Commer vehicles on solid rubber tyres were used. After the war these road activities were extended, but only on a moderate scale, and by 1927 the motor fleet comprised 13 vehicles, namely, 2 Commer, 6 Morris, 4 Ford, and 1 Standard.

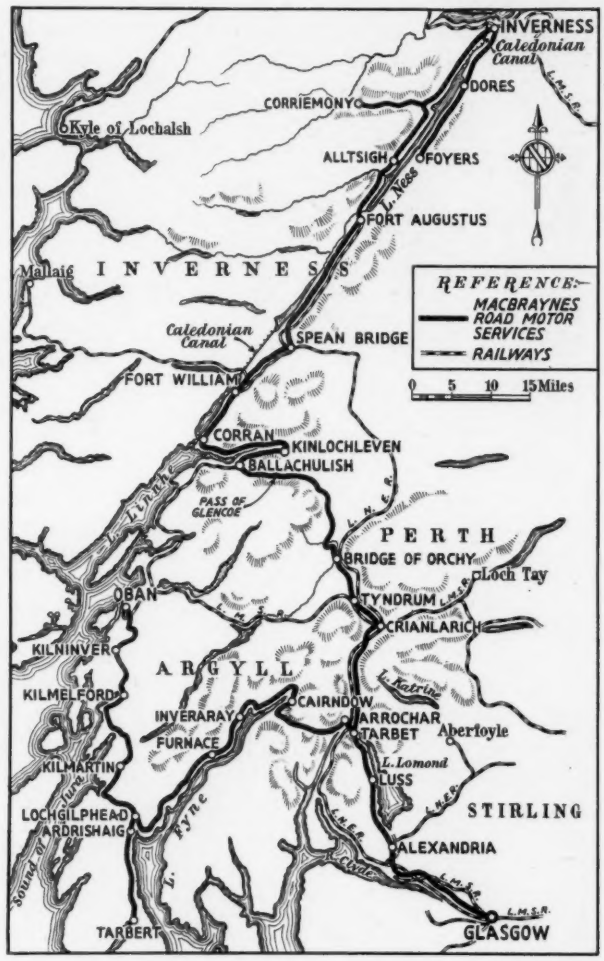
At this period the business was reconstructed, and a new company—David MacBrayne (1928) Limited—was formed on October 31, 1928, under the joint control of the L.M.S.R. and Coast Lines Limited. The motor fleet was augmented by 9 Maudslays and 3 Albions, and 3 of the Fords were withdrawn, leaving the net total at 22.

The services of various proprietors working in the West Highlands have been acquired from time to time, notably Link Lines Limited in March, 1932; the Kinlochleven—Tyndrum route of Hutton Shields in April, 1934; and the passenger section of the Kinlochleven Road Transport Co. Ltd. in September, 1934. The business of Link Lines was formed in 1927 and comprised the lengthy Glasgow—Arrochar—Ardrishaig—Tarbert service. Its inclusion in the MacBrayne organisation resulted in the extension of that company's road motor interests right down the West Coast into Glasgow.

At the present time the MacBrayne road fleet comprises 62 vehicles, namely, 12 Maudslay, 29 Bedford, 7 Albion, 4 Morris, 7 A.E.C., 2 Crossley, and 1 Commer. Naturally, the disposition of these buses is governed by the nature of the routes and the condition of the roads. The best way, therefore, of gaining an impression of the company's activities is to examine its routes individually.

The main route from Glasgow to Tarbert follows the north bank of the Clyde to Dumbarton and then strikes inland, skirting the west side of Loch Lomond to Tarbet. Thence the route proceeds eastwards to Arrochar (where it enters Argyllshire) and Cairndow. Onwards it follows the west shore of Loch Fyne through Inveraray, Lochgilphead, and Ardrishaig to Tarbert. The maximum through service is three buses in each direction, but additional journeys are worked over various sections. This service is maintained mainly by 32-seat A.E.C. Regal diesel-engined coaches of luxury type. All the vehicles from 1935 onwards incorporate the following special features: Sliding heads, thermostatically-controlled heating and ventilation, parcel racks, and special accommodation for luggage. Posting facilities are provided on this route, an official mail box under the direct control of the Post Office being carried on every service vehicle.

A connection runs up from Ardrishaig to Oban, which is



Sketch map of the MacBrayne road motor services

operated by 20-seat Albion Victor coaches incorporating a separate lockfast mail compartment at the rear. These vehicles are also fitted with a thermostatic heating system. In addition to this ordinary stage carriage service, a summer tourist express service is maintained for through-booked steamer passengers only. The special vehicles used are 6-cylinder Maudslay coaches, fitted with luxury bodies, which include curved triplex glass roof panels; electrically-operated Sunsaloon sliding heads controlled from the driver's compartment; thermostatic heating and ventilation; and special provision for handling and carrying tourists' luggage.

Sanction which was secured in 1933 to operate over the Glencoe Road enabled a through service to be instituted between Glasgow and Fort William. This is worked once daily in each direction by a through MacBrayne vehicle leaving each terminus in the morning, but afternoon facilities in both directions are also available through the co-operation of MacBrayne with W. Alexander & Sons Ltd., one of the S.M.T. group. The latter arrangement provides

Above: MacBrayne buses in the station forecourt at Fort William on the shores of Loch Linnhe

Right: One of the 29 Bedfords in the MacBrayne fleet

Left: One of the large-capacity Maudslays operating on one of the Royal Mail services

Enquiry office facing station square, Fort William

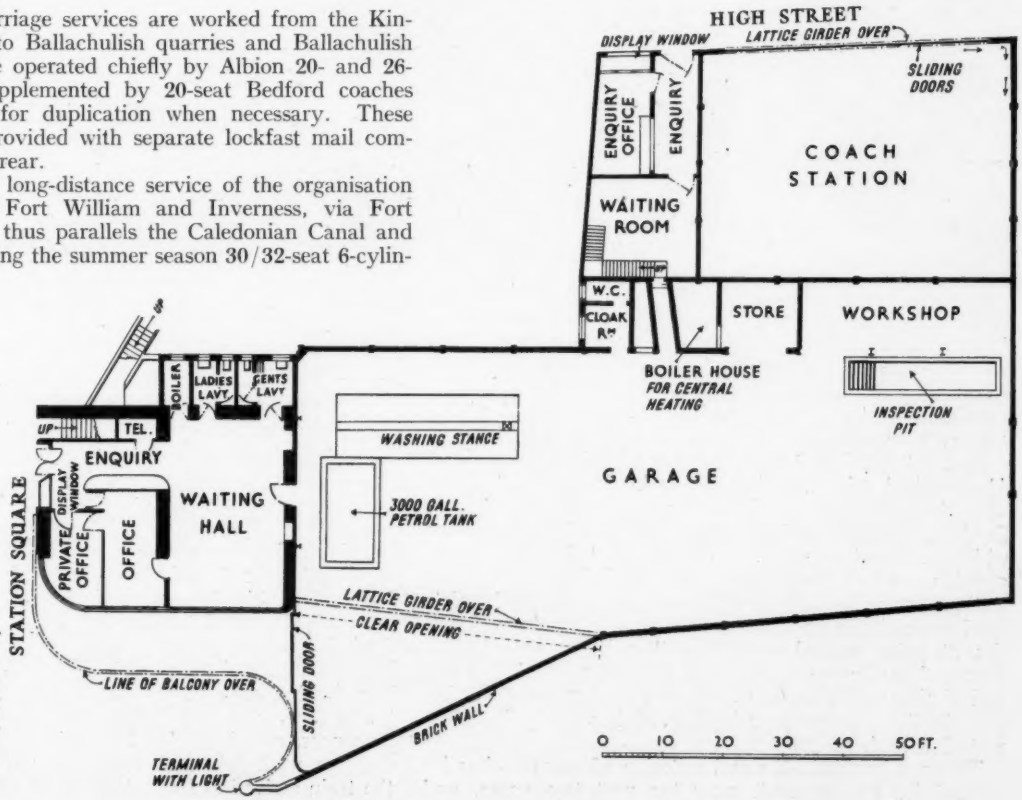
Coach station entrance in High Street, Fort William

for passengers changing vehicles at Tyndrum, travelling by Alexander between Glasgow and Tyndrum, and by MacBrayne between Tyndrum and Fort William. For the through workings A.E.C. Q type diesel-engined coaches, fitted with sliding heads, thermostatic heating, and so forth, are employed; but the short workings between Fort William and Tyndrum are normally maintained by 20-seat Bedford coaches.

Local stage carriage services are worked from the Kinlochleven depot to Ballachulish quarries and Ballachulish ferry. These are operated chiefly by Albion 20- and 26-seat vehicles, supplemented by 20-seat Bedford coaches which are used for duplication when necessary. These buses are also provided with separate lockfast mail compartments at the rear.

The remaining long-distance service of the organisation is that between Fort William and Inverness, via Fort Augustus, which thus parallels the Caledonian Canal and Loch Ness. During the summer season 30/32-seat 6-cylinder coaches are operated between Fort William and Inverness for the tourist traffic, but at other times of the year 20-seat Bedford vehicles (such as are used on local services from both the Fort William and Inverness depots) suffice. Incidentally, certain journeys are worked on alternate weeks by MacBrayne and by McRae & Dick Limited.

From the Fort William depot local workings are main-



Right: Layout of the new passenger offices, garage, and coach station at Fort William of David MacBrayne Limited

tained to North Ballachulish and Kinlochleven; and from the Inverness depot to Glenurquhart and Corriemony, and to Foyers. Groups of tours are also operated from the centres at Inverness, Fort William, Kinlochleven, Ballachulish ferry, and Kentallen pier, chiefly by Bedford Duple-bodied Sunsaloon coaches.

Maintenance and Overhaul

Day to day maintenance and repairs are undertaken at the local depots at Inverness, Fort William, Kinlochleven, Oban, and Ardrishaig. Major overhauls are carried out at the central depot in Glasgow where are available such special tools as a Black & Decker valve and valve-seat reconditioning equipment, Newton boring bar, and Ski-Hi brake testing equipment, in addition to the usual lathes, grinders, and other machine tools. A 30-ton Weaver press has been installed for dealing with operations requiring pressure, such as removing and refitting pinions, sleeves, and so forth. Engine and gear-box units are handled by an H.F. jack-crane in conjunction with an Empire universal stand. The former, which has been modified to suit particular requirements, has been found a particularly useful item of equipment. Bosch injector testing equipment has been provided in connection with the maintenance of diesel engines. The usual oxy-acetylene welding and cutting equipment is in regular use. Compressed air is available "on tap" throughout the garage and workshop for carrying out valve grinding and other similar operations, as well as for cleansing, tyre inflation, and paint spraying. Complete overhauls are usually undertaken at 60/70 thousand miles in the case of the smaller vehicles, and at 100/120 thousand miles in the case of the larger vehicles. In view of the exacting operating conditions in the West Highlands a high standard of braking efficiency has to be maintained, but it is interesting to note that, notwithstanding the arduous service, mileages of upwards of 150,000 have been obtained from the brake linings and drums of some of the larger units. A Ferodo-Tapley brake-efficiency meter is employed for checking the performance after attention.

Road-Rail Goods Transport in Scotland

(*See illustrations on page* 24)

IN Scotland, where, particularly in the Highlands and the Border Country, there is a low density of population, the motor lorry collection and delivery services provided by the railway companies give a rail-road link of great value between city, village, and farm. The large area given to agriculture calls for special co-ordination between road and rail, and excellent services for the transportation of farm produce and livestock are available.

It was for long the recognised practice that farmers should arrange cartage of their own traffic to and from the station. Exceptions existed where the railway company arranged collection or delivery, but as a general rule cartage was the farmers' contribution to the transport of the goods. In 1926 the L.M.S.R. established experimental collection and delivery services for farmers' traffic in 5 areas in Scotland, serving in all 41 stations and of course a wide area around each. Initially the points served were mainly in mid-Lanarkshire and Ayrshire; Lesmahagow and Kilwinning were typical centres. Results were sufficiently encouraging to warrant extension of this farmers' traffic delivery scheme (or country lorry service, as it later came to be called), and the following year 7 further areas were added, involving 116 additional stations in Dumfriesshire, Ayrshire, and as far north as Aberdeen. The Aberdeen scheme covered a wide area, extending practically to Perth—51 stations in all were involved—and was undertaken by Wordie & Company, associated contractors of the L.M.S.R. on behalf of the railway company.

In 1928 another 7 centres were added, ranging from Alexandria in the west to Carlisle in the south. Some 22 stations were brought into the arrangement, apart from Carlisle, where the vehicles served all points and stations within a 10-mile radius. Development has been progressive, and at the present time the L.M.S.R. has 381 stations—covering at least 900 towns, villages, and hamlets (and a multitude of farms)—offering country lorry facilities at rates graded according to mileage and traffic. Farmers' traffic, such as grain, oilcake, packed manure, and similar traffic in bags, receives a measure of preference in the charges over bulk (and less easily handled) materials such as lime.

Tonnage handled—the real criterion of success—has increased by 50 per cent. over the past two years, and is now considerably in excess of 20,000 tons a year. There are few rural points on the L.M.S.R. in Scotland not now served by the lorries of the company or its contractors; developments cannot therefore proceed at the same rate as in the past, but the position is frequently under review by the special headquarters staff. A large part of agricultural Scotland is catered for by the L.M.S.R., and this extensive co-ordination of rail and road services for the benefit of rural communities is ample evidence of the fact that the company fully realises—and is endeavouring to live actively up to—its obligations to the farmers of the country.

Increasing advantage is being taken of the facilities for carrying out farm removals which involve the transport, not only of the farmer's furniture, but also of his stock and implements. The whole of the removal can be carried out in one operation, and this, coupled with the rapid transits afforded, ensures the minimum of interference with the farm routine. By removing in this way there is no need for a farmer to dispose of any of his equipment before leaving his farm.

The use of the lorry and of the road-rail container in providing door-to-door (or in this case farm-to-farm) transport has revolutionised the method of catering for farm removals and has undoubtedly been the means of returning this valuable traffic business to railway hands. Recently a complete farm was moved by special train from Lincolnshire to Scotland. The stock consisted of five horses, thirty-one cows, and thirty calves, with farm implements, which were accommodated in fifteen wagons. Three household removal containers carried the household effects, and a passenger carriage was provided for the farm personnel; after a late afternoon departure, the journey of 300 miles was completed very early the following morning. Another example was a removal from Scotland to Suffolk. In this instance a special train carried the farmer and his dairymen with their families, including seven children and two babies, forty-five cows, one hundred sheep, three horses, one bull, sixteen heifers, twenty-four calves, a dog, a motorcar, and five containers of household effects. Prior to departure a caterer supplied tea to the passengers in the station waiting room and the passengers remained undisturbed in their travelling corridor carriage until 8.0 a.m. the following morning, although the train arrived at its destination at 6.0 a.m.

NEW MOTORCAR FACILITY, SOUTHERN RAILWAY TRAIN FERRY

AN interesting ceremony was staged at Dover on Monday, June 28, in connection with the Southern Railway train-ferry services, a description of which was given in our issues of October 2 and 16 last year. The principal item was the inauguration of a new inclined way, or ramp, allowing motorists to drive their cars direct on to the train ferry and into the fireproof garage provided on the top deck, without the necessity of first emptying their petrol tanks.

Before this part of the programme was carried out, guests were conducted to the train-deck of *Shepperton Ferry* and given a practical demonstration of the through freight wagon service between England and the Continent. An inspection of the pump-house and the machinery for raising and lowering the dock-gates followed, and then the guests assembled at the top of the new inclined way to witness the driving of the first car into the garage on the top deck of the ferry.

In order to add a flavour of romance, the Southern Railway had borrowed an 1898 Benz car, the property of Major G. J. Allday (Director of Automobiles Limited, Weybridge); and with Mr. Gilbert S. Szlumper, Assistant General Manager, and Alderman G. M. Norman, J.P., Mayor of Dover, on board, this ancient equipage took the ramp in its stride, passed over the electrically-operated drawbridge, circled round the garage, and came gently to a stand; it was a picturesque introduction of *fin de siècle* scenery into an ultra-modern setting, and the whole performance was enthusiastically cheered by the onlookers.

At the luncheon, which took place in the Lord Warden Hotel, Mr. Szlumper referred to the success which had attended the inauguration of train-ferry services; not only had the enhanced comfort of travel to the Continent by this means resulted in heavy passenger bookings, but the efficient method of moving commodities, largely of a perishable nature, between Europe and Great Britain had left its mark in an approximate freight tonnage of 40,000 carried between October and May, and this traffic was mounting daily. The new ramp would prove a great boon to motorists, especially to business men using the night service, since, after a full day's work, they could drive down to Dover, garage their car on the ferry boat, sleep comfortably on board, and drive off at Dunkerque, while for those who preferred to travel by day there was, on five days in the week, a service of 1.0 p.m. from Dover, with comparable facilities in the reverse direction.

The first motorcar to be driven on to the train ferry; the Mayor of Dover is in front, and Mr. Gilbert S. Szlumper may be seen on the back seat

Drawbridge giving access from ramp to ferry, in raised position

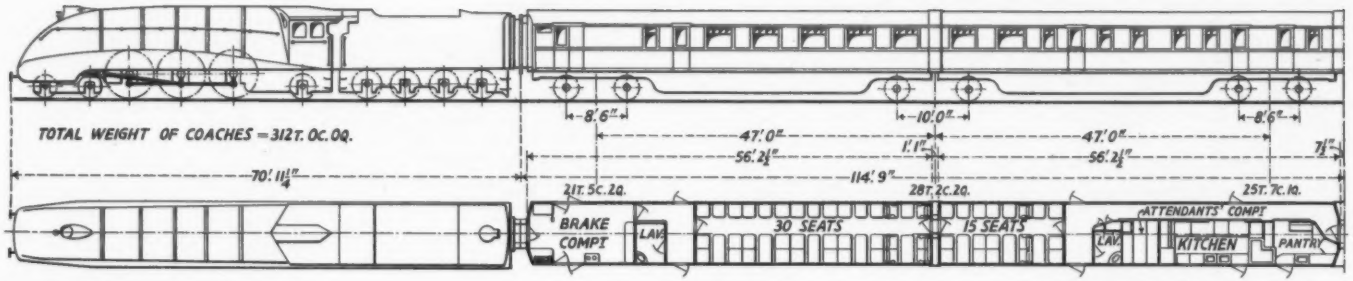
Alderman G. M. Norman, who replied briefly on behalf of the guests, spoke of the efficiency of railways in general, and their desire to give greater comfort to travellers, with special reference to the Southern Railway's innovation; the train ferry was, additionally, a great asset to the town of Dover, more particularly by virtue of the fillip which the constructional works had given to local labour.

The Southern Railway was represented by the following:

Messrs. Gilbert S. Szlumper, Assistant General Manager; R. P. Biddle, Docks and Marine Manager; A. Howie, Joint Accountant; J. B. Elliott, Assistant Traffic Manager; C. Cooper, Continental Assistant; C. Gribble, New Works Engineer; R. M. T. Richards, Development Officer; C. Grasemann, Public Relations and Advertising Officer; E. F. E. Livesey, Deputy Continental Assistant; F. J. Wymer, Divisional Marine Manager, Dover; R. H. Hacker, Continental Department; W. J. Skinner, Continental Department; H. C. Wood, Asst. Divisional Marine Manager, Dover; W. C. Collins, Traffic Assistant, Dover; G. Mann, Resident Engineer, Dover; D. McQueen, Superintendent Engineer, Dover; W. Wauchope, Esq., Electrical Engineer, Docks Dept.

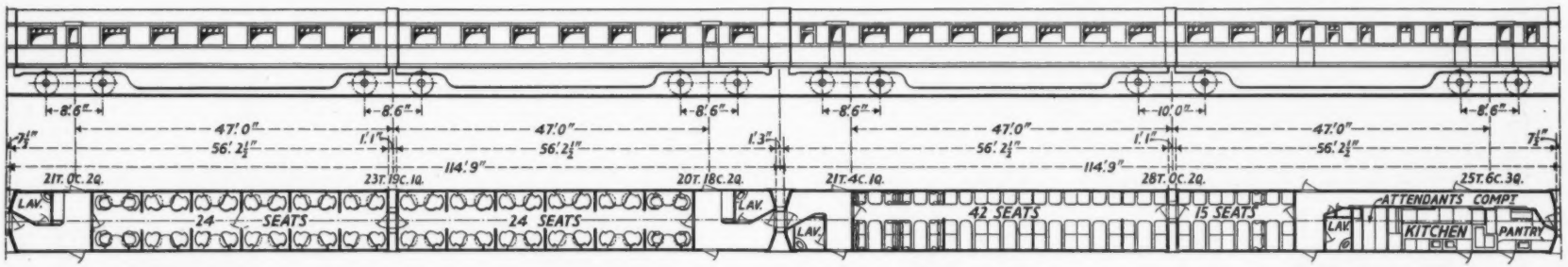
Among the guests were:—

Alderman G. M. Norman, J.P., Mayor of Dover, accompanied by members of his Council; Count J. de Kerdrel, London Representative of the French railways; Dr. Padovan, Assistant Commercial Councillor, Italian Government; M. Grimand, French Ministère du Commerce et de l'Industrie; Mr. A. L. Gibson, Continental Traffic Manager, L.N.E.R.; Captain Iron, Harbourmaster, Dover; and representatives of forwarding agencies.

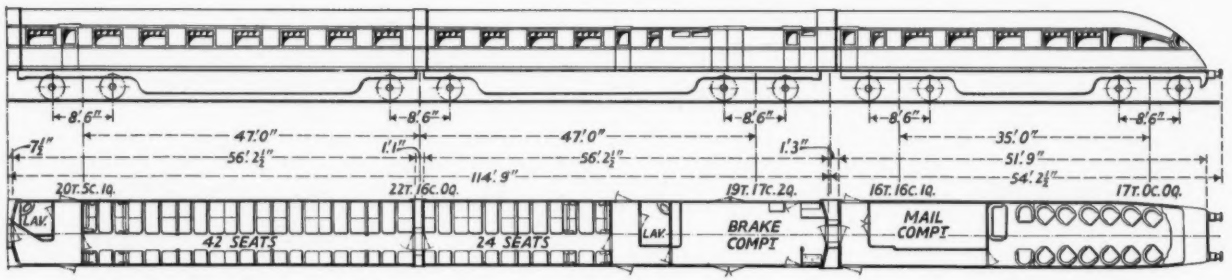


TOTAL LENGTH OF TRAIN = 584'. 1¾"

BRAKE THIRD KITCHEN THIRD



OPEN FIRST OPEN FIRST OPEN THIRD KITCHEN THIRD



OPEN THIRD BRAKE THIRD OBSERVATION SALOON

Composition of the train, showing seating arrangement, principal dimensions, and weights

THE CORONATION EXPRESS, L.N.E.R.

THE CORONATION EXPRESS, L.N.E.R.

New streamlined nine-car trains for the Coronation express service which is to begin running between London and Edinburgh in six hours on July 5. Each has a trailing observation car

FOUR streamlined trains, somewhat on the lines of the Silver Jubilee rakes, are required for the London & North Eastern high-speed services between London and Edinburgh, and London and Yorkshire cities. The first two of these have just been completed at Doncaster shops to the designs of Sir Nigel Gresley, C.B.E., Chief Mechanical Engineer to the company, ready for the inauguration on July 5 of the Coronation express between London and Edinburgh. This service will run daily from Monday to Friday in each direction, leaving King's Cross at 4.0 p.m. and Edinburgh at 4.30 p.m. and accomplishing the journey in each direction in six hours at an overall average speed of 65·3 m.p.h. The train from London to Edinburgh will make an intermediate stop at York (reached in 2 hr. 37 min. at an average speed of 71·9 m.p.h.), providing connections with the Yorkshire cities. The up train will stop at Newcastle to provide a fast evening service from Newcastle and district to London.

The locomotives to be used are Class A4 streamlined Pacifics of the new "Dominion" series, similar to the "Silver Link" class illustrated and described in our issue of September 20, 1935, and are painted in Garter blue with stainless steel lettering and mouldings; the wheels are Coronation red with bright tyre rims. A trial trip with one of these trains hauled by No. 4489, *Dominion of Canada*, was run from King's Cross to Barkston and back last Wednesday (see also page 40). A diagram reproduced shows the composition and weight of the train.

Arrangement of the Trains

The nine-car trains are composed of four pairs of articulated coaches and an entirely new type of observation car in rear. Like the engines, these trains are painted blue, the lower panels Garter blue and the upper in a light shade of Marlborough blue. The fittings, lettering and numbering are in stainless steel. Apart from the observation car the bodies and underframes are built on the same lines as the Silver Jubilee train described and illustrated in THE RAILWAY GAZETTE of September 20, 1935. Also, except for the fact that their pins and bearing plates are grease lubricated on the Tecalemit system, the bogies, too, are of generally similar design, though those under the kitchen cars are slightly modified to carry heavier loads.

These new trains are entirely of the central gangway pattern in so far as the passenger seating is concerned, so that meals can be served at every seat except in the observation car. One kitchen car is placed conveniently to serve each half of the train, the kitchens being all-electric though slightly differently arranged as compared with the earlier Jubilee ones, for the convenience of the staff. The vegetable boiler, for example, instead of being a part of the cooker, is alongside the sink, so that the assistant can work independently of the chef. There are brake and luggage vans at each end, with breast-high partitions to keep the side gangways clear; a lock-up mail compartment is also provided. A noticeable feature is the very wide vestibules or lobbies; shelves for the heavier hand luggage are provided.

The internal arrangement and decoration of the third class cars are uniform. Cross-partitions divide the saloons into three sections, and passengers are seated at tables for four and two on opposite sides of the gangway. To facilitate ingress and egress where there are four seats to a table, the outer quarter-widths of the tables fold over on to the inner, providing a table half the width of that required for meals when these are not being served. The walls are in Rexine of two colours, with an ornamental aluminium fret where the colours join. There are 168 third class seats in all. Upholstery is of uncut fawn moquette, and the floors are carpeted in green.

The features of the first class accommodation are the semi-privacy—doorway openings only connecting each four-seat section with the next—and also the revolving chairs and specially cut-away fixed tables. As a result, passengers can either turn their seats so as to face the centres of the windows with their backs protected from the gangway by the ornamental aluminium wings or panels seen in one of our illustrations, or they can turn towards the centre of the car, stretch out their legs clear of the tables, and yet not obstruct the gangway. The tables, which are admirably arranged for meals, have plate-glass tops covering tapestry to tone with the general scheme. They are edged with stainless beading, hermetically sealed against moisture. The seating for both first and third class passengers is most comfortable.

Decoration and Ventilation

There are two schemes of first class decoration in each train. The first coach largely relies for its effect upon the blending of subtle shades of atmospheric colours, and is lined with Rexine, the surface of which has a texture giving a fine stippled effect in green. The tones of green selected were specially matched and prepared in the Rexine by Imperial Chemical Industries Limited. The walls are decorated by the application of panels and ornamental features in Alumilited aluminium and the panels frame an entirely new form of treatment for the Rexine developed by Acton Surgey Limited by the introduction of a special process of embroidery. A plain Alumilited finish is also used for the aluminium architraves at the doorways and for the decoration of the screens on each side of the doorway openings. The chairs are upholstered in green uncut moquette finished in scarlet braid. The carpet is of green, embodying a small trellis pattern picked out in scarlet.

In the other coach, there is a very unusual scheme of decoration consisting of ornamental silver nails with decorated heads forming a frieze, used in conjunction with the aluminium moulding. The doors are likewise heavily studded with these decorated silver nails. The Rexine in the lower portion of this vehicle is of a very dark green shade, and the upper portion of the walls and the ceiling are covered in cream Rexine. The first class coaches seat 24 passengers each.

The fittings have been specially manufactured and designed to suit the character of the decoration, and include artistic aluminium parcels racks over the windows, with reading lights at each end and decorative aluminium roof lights, embodying grilles through which air from the car is extracted by the Stone's system of exhaust fan ventilation. Filtered air, at a comfortable temperature, controlled by thermostat, is drawn into each

XUM

Left: First class coach, showing alcove-type seating and swivelling armchairs. Right: The beaver-tail observation car. The roof has now been painted in a darker colour at the rear, and streamline aluminium curves, with other ceiling decorations, lead the eye towards the rear window

Above: View through one of the third class cars

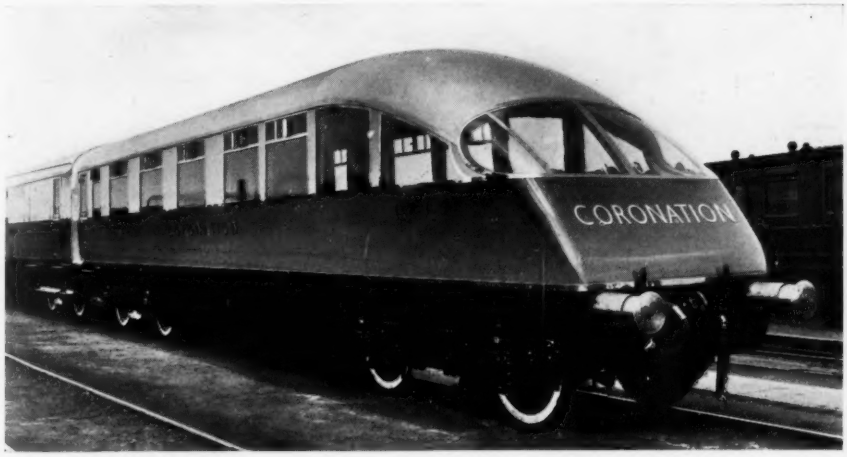
Right: The all-electric kitchen

SOME INTERIOR VIEWS ON THE L.N.E.R. LONDON-EDINBURGH CORONATION EXPRESS

car through unobtrusive inlets under the seats at floor level, so that good circulation is assured. This ventilation system, and somewhat similar parcels racks and lighting, are also provided in the third class cars.

The whole of the decorative schemes have been evolved by Mr. Murray Adams of Acton Surgey Limited, for the L.N.E.R., and include thick pile carpets of dark hues, shading through medium or dark lower wall coverings up to lighter shades above; walls and roofs are covered entirely with Rexine.

The whole train has been specially designed to ensure quietness, sound insulation being provided throughout on the lines adopted for the Silver Jubilee. Great care has had to be exercised to eliminate the possibility of any rattling of the fittings, as this is so greatly exaggerated by the noiseless travelling. In this respect valuable lessons learnt in the case of the Silver Jubilee train have here been embodied. It was noticed that when the sliding upper lights of the windows were closed—the only ones which open—it was impossible to make oneself heard by anyone inside a car, though one shouted at him from just outside it. Travelling on the trial trip demonstrated this great boon to passengers, as it also proved the general comfort and smooth riding of these trains at all speeds.



Beaver-tail observation saloon for the new L.N.E.R. streamlined Coronation expresses

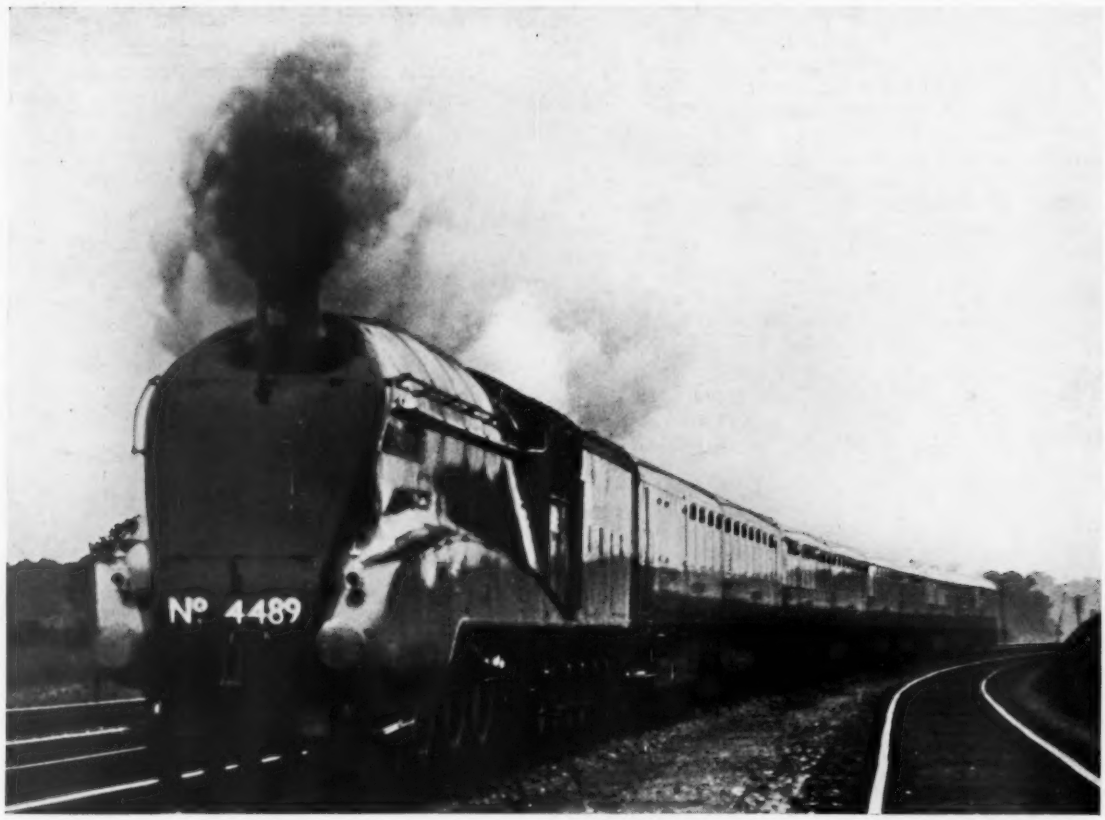
The Observation Car

This streamlined observation car forming the tapering tail-piece to each train is a fine specimen of the designer's art. To work in all the elliptical curves in both horizontal and vertical planes correctly, and yet preserve a practical construction job, was a masterpiece in carriage building. This car, which is entirely open, has movable chairs and is, in fact, a drawing-room car. The inclined trailing observation window is of the special glass substitute known as Perspex, now generally used in aircraft construction. The interior and exterior illustrations of the car most adequately describe it. A special easily-detachable rubber fairing or wind shield over the connecting gangway is fitted to this car, which has to be cut off from the rest of the train, turned and attached at the far end for the return run at the end of each journey. These fairings, which were first introduced in the Silver Jubilee train, preserve the unbroken profile of the coaches throughout the train, and conceal the standard Pullman-type vestibule connections, Buckeye buffing and coupling gear.

Contractors for Equipment

The following list shows the firms concerned in the supply of equipment for the Coronation trains:—

Side bearing springs	Thos. Firth & John Brown Limited; Messrs. Willford & Co. Ltd.; Steel, Peech & Tozer.
Bolster springs (Timmis) ..	Turton Bros & Matthews Limited.
Axleboxes	Robert Hyde & Son Ltd.
India-rubber streamlining, springs, hosepipes and vestibule diaphragms.	Geo. Spencer Moulton & Co. Ltd.
Paints	Docker Brothers.
Electric cooking equipment ..	J. Stone & Co. Ltd.; Henry Wilson Limited.
Electric cooking batteries ..	Chloride Electric Storage Co. Ltd.
Coffee machines and stainless steel sinks.	W. M. Still & Sons Ltd.
Pressure ventilating equipment; train lighting equipment.	J. Stone & Co. Ltd.
Train lighting cells.	J. Stone & Co. Ltd.; Pritchett & Gold & E.P.S. Co. Ltd.; Chloride Electric Storage Co. Ltd.; Vickers Train Lighting Co. Ltd.
Exterior steel panels.	J. Lysaght Limited.
Stainless steel exterior; mouldings and fittings.	Firth-Vickers Stainless Steels Limited; Industrial Units Limited.
Alpax drop light frames; steam heating and vacuum couplings.	Lightalloys Limited.
Steel dovetailed sheeting.	Beckett, Laycock & Watkinson Limited.
Insulation for floors, walls, heating pipes.	J. W. Roberts Limited.
Rexine	I.C.I. (Rexine) Limited.
Upholstery materials.	J. Holdsworth & Co. Ltd.; A. H. Lee & Sons Ltd.
Aluminium fittings and decoration.	The Northern Aluminium Co. Ltd.; Blunt & Wray Limited; The Chase Non-Ferrous Metal Company; Lightalloys Limited; (the whole of these fittings being finished in the Alumilite process by Alumilite at Thames Factory, Hammersmith.
Carpets	T. F. Firth & Sons Ltd.
Seat spring fillings	Vi-Spring Products Limited.
Head and arm rests	Dunlop Rubber Co. Ltd.
Chairs and settees (observation car).	Heal & Son Ltd.
Sliding shutter ventilators ..	J. Beresford & Son Ltd.; A. G. Wild & Co. Ltd.
Locks and latches	Joseph Kaye & Sons Ltd.
Lavatory floors	Korkoid Decorative Floors Limited.
Refrigerators	Messrs. British Automatic Refrigerators (1936) Limited.
Hopper and flushing cisterns ..	Twyfords Limited.
Washbowls	Doulton & Co. Ltd.
Inside fittings	W. M. Still & Sons Ltd.; N. F. Ramsay & Co. Ltd.; Linley Engineering Co. Ltd.; Federated Engineers Limited; Laycock Engineering Co. Ltd.
Plywood	London Plywood & Timber Co. Ltd.; W. Swales Limited.
Glass and mirrors	Pilkington Bros. Ltd.
Perspex	Mouldrite Limited (I.C.I.).
Bostik adhesive	B.B. Chemical Company.



The L.N.E.R. Coronation Express doing 83 m.p.h. on the down grade below Hatfield, June 30

The Coronation Scot of the L.M.S.R. at 86 m.p.h. near Watford on the long rise to Tring, June 29

RAILWAY NEWS SECTION

PERSONAL

Mr. G. H. Fletcher, M.I.E.E., Chief Engineer and Manager of the Sheffield works of the Metropolitan-Vickers Electrical Co. Ltd. was elected Chairman of the Comité Mixte at its meetings in Paris held on June 24 and 25. The

Photo] [*Lafayette*

Mr. G. H. Fletcher,

Chief Engineer and Manager, Metropolitan-Vickers Electrical Co. Ltd., Sheffield

Comité Mixte is a joint committee of the International Electro-technical Commission, the International Union of Railways, and the International Union of Tramways, with representatives of manufacturers of electric traction equipment. It was formed some years ago to formulate international rules concerning electric traction equipment. Mr. Fletcher has proceeded from Paris to Vienna to read a paper at the Congress of the International Union of Tramways, which he has written in collaboration with Mr. Owen Silvers, General Manager and Engineer of the Wolverhampton Corporation Transport Department. The paper is entitled "Recent developments in Trolleybus Systems, Vehicles and Equipments in Great Britain." The meetings of the Congress in Vienna are being held from June 27 to July 3.

Mr. George Cocollis, London Accountant and Assistant Secretary, Central Argentine Railway, who has been on a business visit to Argentina of some two months' duration, sailed on his return to England on May 26.

Mr. T. B. Stewart, Traffic Superintendent, Buenos Ayres Great Southern and B. A. Western Railways, also sailed for England on leave on the same date.

Mr. C. G. Rose, who is retiring from the position of District Engineer, Stoke, L.M.S.R., was articled in 1897 to Mr. (now Sir) C. L. Morgan, then Chief Engineer of the London, Brighton

Mr. C. G. Rose,

Who is retiring from the position of District Engineer, Stoke, L.M.S.R.

& South Coast Railway, afterwards joining the engineering staff of that railway. In 1905 Mr. Rose was appointed Senior Assistant to the Resident Engineer of the Colombo drainage works in Ceylon. Two years later he was appointed to the Central Argentine Railway Company as one of its construction engineers, a position he held until 1912, when he rejoined the engineering staff of the Brighton Railway. In October, 1914, Mr. Rose was lent to the War Office to take charge of the construction of a length of the Southern defences of London. In November, 1915, he was granted a commission in the Royal Engineers, and went out to France, finally being appointed as one of the construction engineers in light railways with the rank of Major. He was demobilised in 1919, and, on returning from France, rejoined the engineering staff of the Brighton Railway. In January, 1920, he was appointed Assistant Engineer of the North Staffordshire Railway, becoming Engineer to that company on January 1, 1921. At the time of grouping, Mr. Rose was appointed District Engineer of the Stoke District, L.M.S.R., from January 1, 1923, from which position he retires on July 31 on attaining the age of 60. He will be succeeded at Stoke by Mr. N. L. Wallis (see last week).

Indian Railway Staff Changes

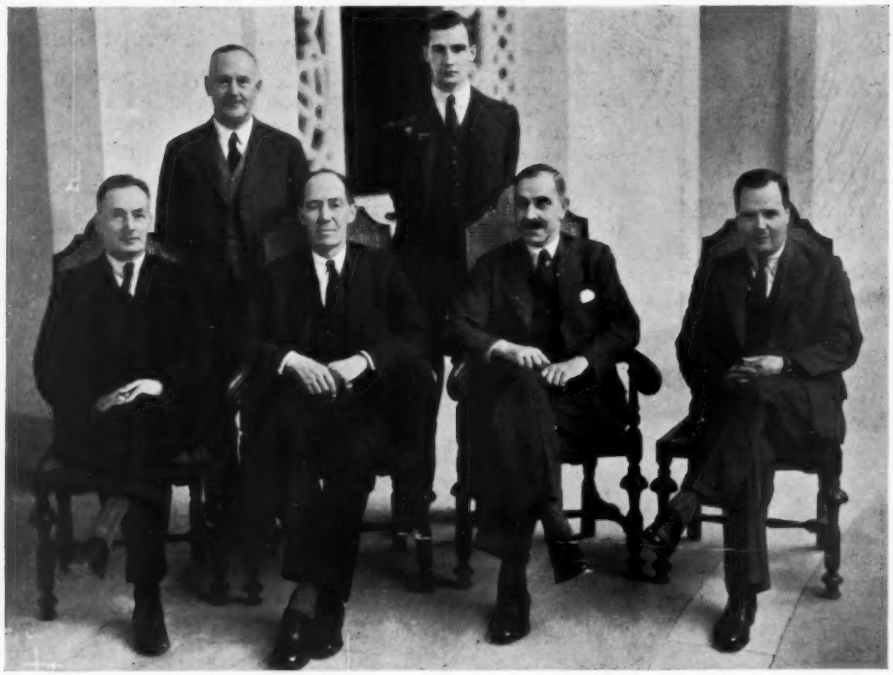
Mr. W. H. Burnand, Chief Operating Superintendent, E.I.R., has been permitted to retire from Government service, as from April 19.

Mr. A. M. Sims has been appointed to officiate as Deputy Agent, N.W.R.

Mr. G. T. Tait, Central Publicity Officer, State Railways, has been granted leave for seven months as from

Left to right : Messrs. F. L. Creswell, J. Wilson, H. C. Siddeley, S. Irving, C. R. S. Harris, C. E. S. Dodd, M. F. Ryan, C.B.E. (Chairman), Engineer A. Vaquer, W. C. R. Livesey, and Major W. A. McCallum

Centre of Engineering and Transport Coronation Dinner, Buenos Aires, May 13
(*see also page* 8)



Left to Right (seated): Mr. H. Cheadle, Sir Ralph Wedgwood, Mr. W. A. Stanier, Mr. A. Forbes Smith
Standing: Mr. L. H. Kirkness, Mr. B. M. Strouts

The Wedgwood Indian Railway Enquiry Committee, whose report is summarised on pages 10–14

INSTITUTE OF TRANSPORT VISIT TO GERMANY

Group taken outside Sans Souci Palace, Potsdam, last Sunday. Front row, centre, Sir Herbert Walker, General Manager, Southern Railway; on his right, Mr. E. C. Cox, and Mr. A. Winter Gray, Secretary, Institute of Transport

April 9. Mr. A. Gumbrill, Publicity Officer, E.I.R., has been appointed to officiate for him during his absence.

Mr. H. M. R. Morse, has been appointed to officiate as Superintendent, Mechanical Workshops, N.W.R., as from March 18.

Mr. C. A. K. Bradley has been appointed to officiate as Chief Mechanical Engineer, E.B.R., as from April 6, in place of Mr. R. L. W. Meehan, who reverted to Deputy C.M.E., on that date.

Mr. S. Taylor has been appointed to officiate as Deputy Chief Mechanical Engineer (Workshops), E.B.R., as from April 3.

Dr. F. E. R. Laborda has been appointed to officiate as Chief Medical Officer, E.I.R., as from April 8.

Mr. E. C. Whelan has been appointed to officiate as Senior Government Inspector of Railways, Circle No. 7, as from May 14.

Mr. S. H. P. Lincke has been appointed to officiate as Controller of Stores, G.I.P.R., as from April 13.

Mr. B. M. Staig, M.L.A., Financial Commissioner of Railways in the Government of India, has, on being nominated by H.E. the Governor General as a member of the Standing Finance Committee for Railways, assumed the chairmanship of that body.

Sir George Beharrell, D.S.O., Managing Director of the Dunlop Rubber Co. Ltd., has been elected Chairman of the company, and of Imperial Airways Limited.

Mr. R. P. Wyndham Adeane has been elected a Director of the Buenos Ayres & Pacific Railway Company.

Mr. C. B. Foster, Passenger Traffic Manager, Canadian Pacific Railway, is to retire on June 30. He will be succeeded by Mr. R. G. McNeillie, Assistant Passenger Traffic Manager, Eastern Lines.

OLD CROMPTONIANS ASSOCIATION DINNER

Colonel R. E. Crompton, C.B., R.E., F.R.S., was in the chair at the annual dinner of the Old Cromptonian Association, held at Grosvenor House, Park Lane, London, recently; among those supporting him were the Rt. Hon. Lord Hirst of Witton, Sir James Swinburne; Messrs. F. Parkinson, J. E. Edgecumbe, H. A. Scott-Moncrieff, J. Willoughby Meares, and E. J. Fox. Lord Hirst proposed the toast of "The President," and in his reply, Colonel Crompton stressed his belief, arrived at after a long and crowded life, that the only thing that matters is to live for the service of our fellowmen. Mr. Willoughby Meares stressed the firm's keen sense of responsibility to its employees, and Mr. Fox, commenting on the growth of the firm's activities, mentioned that these now include important cable works at Derby; and a transformer factory at Hayes.

Viscount Runciman has been reappointed a Director of the London Midland & Scottish Railway. He resigned from the board in 1931 on becoming President of the Board of Trade. Lord Runciman retired from the Cabinet last month when he received his title.

L.M.S.R. APPOINTMENTS

Mr. H. Rudgard has been appointed Divisional Superintendent of Operation, Derby, as from August 1, in succession to Mr. E. D. Grasett, who is retiring.

The designation of Captain J. W. Harris, Chief Marine Superintendent, has been altered to Marine Manager. Captain W. L. Sinclair, Marine Superintendent and Harbour Master (Holyhead) has been appointed Assistant Marine Manager.

L.N.E.R. APPOINTMENTS

The L.N.E.R. announces the following appointments:—

Mr. L. C. Glenister, Locomotive Accountant, Darlington, to be Assistant Accountant in succession to Mr. R. Brown, who recently died.

Mr. R. W. McEwen, Divisional Accountant's Office, Southern Area, to be Locomotive Accountant, Darlington, in succession to Mr. Glenister.

It is with regret that we record the death on June 29 of Dr. H. H. Jeffcott, Secretary of the Institution of Civil Engineers since 1922. From 1910 to 1922, Dr. Jeffcott was Professor of Engineering in the Royal College of Science for Ireland, Dublin. He wrote many papers on engineering and scientific subjects for the transactions of learned societies.

A memorial service for the late Sir Eric Geddes, whose death on June 22 we recorded last week, was held at St. Columba's (Church of Scotland), Pont Street, S.W., on Monday. Among the numerous representatives of transport and industry who attended were:—

Mr. A. W. Arthurton (representing the Council of the Institute of Transport), Sir George Beharrell (Chairman, Imperial Airways Limited), Sir Alexander Butterworth, Mr. W. P. N. Edwards (representing Lord Ashfield), Sir Sam Fay, Sir Guy Granet, Sir Patrick Hannon, the Hon. Esmond Harmsworth (Director, Imperial Airways Limited), Mr. G. E. Woods Humphrey (Managing Director, Imperial Airways Limited), Mr. R. H. Hill and Mr. R. Tolerton (representing the Ministry of Transport), Mr. F. C. Howard (representing Sir William Wood, Vice-President, L.M.S.R.), Sir Samuel Instone (Director, Imperial Airways, Limited), Sir Francis Joseph, Wing-Commander Measures (representing Chairman and directors, Railway Air Services Limited), Col. A. H. L. Mount, Sir Walter Nicholson (Director, Imperial Airways Limited), Mr. R. S. Oakenfull (representing Brig.-Gen. Sir Henry Maybury), Mr. Clive Pearson (Chairman, British Airways Limited), Mr. H. Scott Paine (Director, Imperial Airways Limited), Mr. H. G. Riddle (representing Junior Institution of Engineers), Mr. A. T. V. Robinson (representing the Minister of Transport), Sir John Salmond (Director, Imperial Airways Limited), Lt.-Col. Sir Francis Shelmerdine (Director-General of Civil Aviation, Air Ministry), Capt. W. A. T. Synge (representing Federation of British Industries), Sir Edmund Wyldbore Smith (Chairman, Thos. Cook & Son Ltd.), and Sir Ralph Wedgwood.

Review of Standard and Exceptional Charges

The Railway Rates Tribunal continued on June 24 the hearing of the application by the four main line railway companies for a general increase of about 5 per cent. in rates and fares. The case for the railway companies had closed on June 23. Objections by farmers were heard on June 24. Mr. F. L. Sabatini, Transport Officer of the National Farmers' Union, said that the increased cost would undoubtedly drive more agricultural traffic on to the roads. He admitted that the railway companies had done all they could to meet the union over charges.

Mr. J. Hamilton Wayn, a past-President of the Union, said that unless there was a greater increase in agricultural prices than at present, it was going to be a difficult matter for the farmer to carry on with increasing wages.

Mr. Maxwell Fyfe, K.C., on behalf of the National Farmers' Union, asked the tribunal on June 25 to make no modification in charges that would affect agriculture. If an increase of 5 per cent. were put on there would be a drop of at least 15 per cent. in agricultural rail traffic, which amounted to £13,100,000. This would mean a net loss to the companies of about £1,000,000 annually.

Colonel Sholto Stuart Ogilvie, Joint Manager of the National Gas Council of Great Britain and Ireland, giving evidence on Monday, June 28, said that the gas industry was the second largest consumer of coal, and that last year gas undertakings used 17,200,000 tons, two-thirds of which was carried by rail. An increase in the cost of gas would lead inevitably to increased use of oil, and an increase in the railway rates would lead to gas being sent through pipe lines from the pit head to the consumer. He admitted that the price of gas had been raised by some undertakings already, but not by the majority. The prices of creosote and of coke were up.

Mr. Jacques Abady, K.C., speaking on June 29, on behalf of the coal, iron, and steel industries, said that the heavy industries traffic on the railways in 1929 was 73·7 per cent. of all merchandise traffic and in 1936 it was 75·5 per cent. Receipts from heavy industries traffic in 1929 were 45·5 per cent. of all merchandise receipts, while in 1936 they were 49·5 per cent. He did not consider that there was anything so glowing in the improvement of trade today that the proposed increase in railway charges would result in the maximum development of traffic.

Sir David R. Llewellyn, a director of a number of South Wales colliery companies, said there was no justification for the statement that prosperity had returned to the South Wales coalfields. Germany had captured a large share of the market previously held by South Wales, and was increasing its hold. Another factor the South Wales coalowners had to contend with was the large amount of coal sold forward.

The hearing was continued yesterday.

XUM

Institute of Transport Visit to Germany

(From our special correspondent)

The first stage of the Institute of Transport visit to Germany, to which reference was made in last week's issue, concluded yesterday when the party left Berlin for Nuremberg. The stay in Berlin, which was reached early last Sunday morning, has been a particularly happy and instructive one, and the care and interest of the management of the German State Railway have been manifested by the admirable arrangements made everywhere for the comfort and convenience of the party.

The visit began on Saturday, June 26, when the party left Victoria station at 10.20 a.m. in a special train placed at its disposal by the Southern Railway. The Dover—Ostend service was used and the travellers enjoyed a delightful crossing. At Ostend, where the party was greeted by officials of the Belgian National Railways, a special train was waiting and the journey was continued to Aachen, which was reached soon after 10.0 p.m. Mr. Merz, the London manager of the Belgian National Railways accompanied the party so far as Schaerbeck, where officers of the Belgian Railways boarded the train and welcomed the visitors.

At Aachen the party changed to a special train composed of Mitropa sleeping cars of the most up-to-date type and a smooth and comfortable journey to Berlin followed. Dr. Marx, the President of the Berlin Division of the Reichsbahn, welcomed the visitors on their arrival at the Friedrichstrasse station on behalf of Dr. Dorpmüller, saying that railways are a true link between nations. He recalled that it was an English locomotive which drew the first train run in Germany more than a century ago, and said that German railwaymen followed the progress and improvements made by British railways with the liveliest interest.

Visits in Berlin

On June 28, the visitors were received at the Town Hall and a visit was made to the Tempelhof Aerodrome. Major Boettcher, the Aerodrome Director, welcomed them and gave a short description of the main features of the aerodrome, and explained that it was to be replaced within the next two or three years by one much larger and with greater facilities. Some of the planes were inspected and a few of the visitors were given short flights. In the afternoon, an inspection was made of the works in progress in connection with the new north and south tunnel which will connect the north and south terminals in Berlin of the German railways. Before inspecting the works, the visitors were received at the head office of the German railways by the Engineer, Herr Grabski, who explained the nature of the project and the method of construction. His explanation was illustrated by a film which made possible a much greater appreciation of the construction work which was later viewed at the Anhalter station and at the Potsdammer Platz station. The inspection concluded with a visit to the Stettiner station—one of the stations on the section of the line which is open—and a journey in one of the electric trains so far as the Friedrichstrasse station.

Reception by the Reichsbahn

On the evening of June 28 Dr. Dorpmüller was to have received the visitors, but unfortunately he had been summoned away from Berlin on State business. His place was taken by Herr Kleinmann, Secretary of State to the German Ministry of Transport and Deputy General Manager of the railways. The reception was held at the famous Kaiserhof Hotel, and was followed by dinner at which the visitors were the guests of the German State Railway. The function was impressive in its excellent organisation, representative character, and lavish hospitality. Herr Kleinmann expressed, on behalf of Dr. Dorpmüller, a cordial welcome to the party and after referring to the close relation between British and German railwaymen, spoke of the recent alteration in the organisation of the German Reichsbahn, and explained that the new arrangement did not affect the independence of the railways from the financial point of view and in no way influenced the method of German railway working.

The President of the Institute, Sir Alfred Read, acknowledged Herr Kleinmann's address, and Sir Josiah Stamp and Sir Herbert Walker expressed on behalf of the Institute and the visitors their thanks to the German railways for their help and interest in arranging the tour, as well as for their very generous hospitality.

June 29 was urban-transport day, the programme providing for an inspection of the underground railway arrangements and surface traffic conditions (including a visit to the Alexander Platz station), and the principal bus and tram depots of the Berliner Verkehrs Gesellschaft, the "Berlin L.P.T.B." Dr. Ullmann, the General Manager, and Herr Schneider, the Engineer, of this great undertaking met the members of the party and provided it with a complete and most interesting view of Berlin transport. The programme also included a demonstration of the lorry for transporting railway wagons, a device which obviates the expense of private sidings for smaller industrial firms.

The evening of June 29 was devoted to a reception and dinner at the Zoological Gardens Restaurant. This function was arranged by the Institute in honour of Dr. Dorpmüller and other prominent German officials. Dr. Dorpmüller's place was again taken by Herr Kleinmann. Among the guests were:—

Herr Reichsbahn-Direktionspräsident Marx, Herr Reichsbahnrat Neumann, Frau Neumann, Herr Ministerialdirektor Prang, Frau Prang, Prinz Louis Ferdinand von Preussen, Herr Reichsbahndirektor Rudolphi, Frau Rudolphi, Herr Direktor Schneider, Herr Reichsbahninspektor Stumpf, Herr von Schweinitz, Ministerialdirektor Treibe, Herr Direktor Ullmer, Ministerialdirektor Waldeck, Herr Direktor Dr. Weirauch, Frau Weirauch, Herr Direktor bei der Reichsbahn Dr. Paul Wagner, Herr von Winterfeldt, Herr Reichsbahndirektor Baumann, Frau Baumann, Freiherr Marschall von Bieberstein, Freifrau Marschall von Bieberstein, Herr Direktor Duncker, Herr Reichsbahndirektor Grabski, Herr Grube, Herr Direktor bei der Reichsbahn Dr. Hardt, Oberregierungsrat Hessel, Herr Direktor bei der Reichsbahn Dr. Jahnke, Herr Kirchgessner, Herr Staatssekretär Kleinmann, Frau Kleinmann, Herr Staatssekretär Koenigs, Frau Koenigs, Herr Direktor Lorenz, Herr Ministerialdirektor Leibbrand, Frau Liebbrand.

The President of the Institute proposed the toast of the German Ministry of Transport and German State Railway.

As President of the Institute of Transport, he said, he had been entrusted with many very pleasurable duties. He thought he could say with all sincerity, however, that none had given him such pleasure as that which he now undertook. They were fortunate in having present Dr. W. Kleinmann, the Secretary of State of the Ministry and Deputy General Manager of the State Railway, representing Dr. Dorpmüller, and to him they offered a most cordial welcome.

German Transport Achievements

Perhaps he could best do justice to this toast by glancing briefly at some of the outstanding achievements in the transport sphere in Germany, and he would refer first to the German State Railway. That great undertaking was second to none in technical development and completeness of organisation. In 1933, Germany excited the interest of the whole railway world in the internal combustion railcar by introducing the Flying Hamburger. In the first two years of its history, that famous train ran over 200,000 miles between Berlin and Hamburg at scheduled speeds approximating 77 m.p.h. He was interested to learn that one of these railcars recently attained the amazing speed of 127½ m.p.h., so they would see that their German colleagues had the question of speed well in hand.

The use of steel coaching stock was now practically standard in Germany and the members of the Institute party would, from experience, be able to subscribe to the view that nothing more comfortable had been devised than the latest type of Mitropa sleeping car and dining car. Turning for a moment from passenger to freight equipment, mention must be made of the fact that all goods wagons on the German railways had been fully

braked for the past twelve years; also that the 60-ton giant coal trucks showed a 33 per cent. proportion of tare weight to carrying capacity. The passenger stations of the Reichsbahn were among the finest in the world, and two splendid examples were to be found at Leipzig and Stuttgart. The administrative buildings, too, were on a magnificent scale, as witness the central offices on the banks of the Spree in Berlin, and the area head offices at Cologne alongside the Rhine.

In the field of operation, the railways had many remarkable achievements to their credit. A particularly noteworthy performance was the transport to the Olympic games in Berlin last year of 4½ million passengers in a fortnight to the four stations where the traffic was handled. In 1931, the railways had one run only booked at 58 m.p.h. and that run was 30 miles in length. Today, there were 157 such runs totalling in length some 11,000 miles.

The Institute party was looking forward with especial interest to travelling over some of the magnificent roads which had been constructed to meet the needs of fast moving motor traffic. For carrying passengers along these speedways, he understood that four types of express buses had been designed for speeds varying from 65 m.p.h., propelled both by petrol and diesel engines. In 1935 alone, 1,400 motor lorries were purchased by the Reichsbahn, and the total fleet now numbered several thousands. These motors were used mainly as feeders to the railways. Another development of special interest was the transport of railway wagons through the streets so that factories which had no private siding could enjoy this facility without the immense capital expenditure which would otherwise be necessary. A further feature which compelled admiration was the extraordinarily effective system of education which prevailed not only on the railways but throughout Germany. Among the prominent staff activities of the railways were: the ownership or part ownership of 130,000 employees' houses, *i.e.*, one for every fifth employee; no fewer than 4,000 medical men to act as accredited railway doctors; over 500 sporting and gymnastic associations with upwards of 200,000 members.

In reciting this long list of technical developments and remarkable results, it was his purpose to emphasise that they had in a very large measure been the outcome of the genius, devotion, inspiration and organising ability of that great railway man, Dr. Julius Dorpmüller.

The highest honour the Institute of Transport could confer upon anyone who rendered distinguished services to it was the award of the gold medal of the Institute. He looked forward to the pleasure of asking Dr. Dorpmüller to accept at his hands one of those medals, and he hoped to have the opportunity of doing so before he left Berlin. The medal was presented to Dr. Dorpmüller in recognition of (1) his great services to the science of transport; (2) the illustrious position he occupied as the leader of transport in his country; and (3) the great personal interest he had evinced as the representative of the German railways in the visit of the Institute party, and his solicitude for its comfort, convenience, entertainment and instruction.

To the German Railway Company he expressed on behalf of the Council of the Institute and the members and ladies present the expression of their profound gratitude for the splendid reception and prodigal hospitality which had been extended to the party, the memories of which they would cherish for very many years to come. Sir Alfred Read concluded, speaking in German, by saying that Germany offered to the student of transport today as rich a field of study as any in the whole world, and, secondly, that the Germans themselves were just as ready and willing to co-operate with the rest of the world in solving its transport problems as they were to acknowledge their century-old debt to the English for many of the advances made in their own country since the year 1835.

Herr Kleinmann replied to the toast. "Our Guests" was submitted by Sir Osborne Mance and acknowledged by Marschall von Bieberstein. Sir Alfred Read then presented the silver medal of the Institute to Herr Hans Seydel, the London Manager of the German State Railway, in recognition of his services in connection with the tour.

After Herr Seydel returned to London, the party was accompanied by Dr. Paul Wagner, an officer of the Reichsbahn. Tomorrow, Saturday, the party proceeds to Nuremburg.

QUESTIONS IN PARLIAMENT

Unprotected Live Rail Accidents on the Southern Railway

Brigadier-General Clifton Brown (Newbury—U.) on June 23 asked the Minister of Transport what had been the result of his inquiries to the Southern Railway Company about the death of the four children killed recently by coming into contact with their unprotected live rail; and whether he was taking steps to ensure that the Southern Railway Company would provide proper fencing or take adequate measures to prevent similar accidents in future.

Dr. Leslie Burgin: I am still in communication with the company regarding these accidents but am fully alive to the position. I am most anxious to give them every opportunity of carrying out whatever experimental work they desire.

Railways and Air Line Bookings

Wing Commander J. A. C. Wright (Erdington—C.) asked the Under Secretary of State for Air whether the recent arrangement which had been arrived at between the Air Ministry and the railway booking offices with regard to facilities for booking passages on air-lines other than those operated by Imperial Airways and Railway Air Services would apply to British air-lines flying to Dublin.

Lieut-Colonel W. J. Muirhead (Under Secretary of State for Air) wrote in reply: I understand that the recent arrangements between the railway companies and British Airways Limited in regard to booking facilities apply only to the continental services of the latter company.

Underground Rush Hours Traffic

Sir Percy Harris (Bethnal Green, S.W.—Lib.) on June 30 asked the Minister of Transport whether, in view of the crowded conditions of Underground trains in London during rush-hours, he would make representations to the London Passenger Transport Board to remove the distinction between first and third class compartments during those periods.

Dr. Leslie Burgin (Minister of Transport): The Underground lines of the London Passenger Transport Board are operated on the one class only system with the exception of the Metropolitan and District Lines. I am informed by the board that it is not practicable to abolish the distinction between first and third class accommodation on the Metropolitan and District Lines during the peak hours, whilst retaining it at other times. The board further states that it reviews annually the position with regard to first class traffic with a view to satisfying itself whether a continuance of the distinction is warranted and that hitherto the volume of that traffic has been such that the board has not felt justified in making a general withdrawal of the distinction.

Mr. G. Lansbury (Bow and Bromley—Lab.) asked the Minister to make further inquiries of the board, because on Monday last the authorities had informed a deputation from the East End that they intended abolishing the first class, or to make it available for all passengers during rush hours in the near future.

Dr. Burgin undertook to make further inquiries on the subject.

Consumption of Coal

Captain L. F. Plugge (Rochester, Chatham—U.) asked the Minister of Transport if he could give any estimate of the reduction in the consumption of coal by railway companies in this coutry as a result of improvements in the design of railway locomotives during recent years.

Dr. Leslie Burgin: The consumption of coal per engine mile is given in the annual railway returns issued by my department and shows some reduction over the last ten years, but I am unable to isolate the effect of improvements in locomotive design from other relevant factors.

Fast Test Runs of Coronation Trains on L.M.S. and L.N.E. Railways

Last Tuesday and Wednesday, respectively, trial runs were made of the Coronation Scot of the L.M.S.R. and the Coronation of the L.N.E.R. These trains are to come into regular service on Monday next, July 5, between Euston and Glasgow (6½ hr.) and King's Cross and Edinburgh (6 hr.).

The L.M.S.R. Runs

On the L.M.S.R. down journey (with a train from which one of the two kitchen cars had been removed for the special run, thus reducing the weight by 34 tons) time was fairly closely adhered to. The gradual acceleration to 82 m.p.h. up the 1 in 339 to Carpender's Park was notable, as also the steady 80½ m.p.h. over the upper part of the 1 in 335 to Tring. A recovery from 77 m.p.h. through Weedon was made up 1 in 490 and 350 to 82 m.p.h., with a dropping back to 78 up the subsequent 1 in 350 and 415 grades. Nothing further of exceptional note occurred until the engine was opened out after Norton Bridge, rapidly accelerating up 1 in 509 – 650 – 590 – 398 to 85 at Whitmore troughs, after which came the extremely high speed down Madeley bank, giving a maximum of 113 m.p.h. (the Hasler recorder on the locomotive showed a peak of 114 m.p.h.), a mile at 112½ m.p.h., 4½ miles (posts 151¾ to 156¼) at or over 100, and 10 miles (147–157) at an average of 100 m.p.h. Crewe was thus reached in 129 min. 46 sec., at a start-to-stop average of 73·1 m.p.h. from Euston.

Coming back the running throughout was brilliant, and on the trial schedule of 135 min., a gain of 16 min. was recorded. There was an acceleration from the start up 1 in 269–177 to 74 m.p.h. at Madeley, and up the final 1 in 348 of Madeley bank to 80½ m.p.h. at Whitmore troughs. Thereafter speed ruled chiefly round the 90 m.p.h. mark, save where reductions for curves were enjoined, and among exceptional features was a fall only from 90 to 86 m.p.h. up 3½ miles at 1 in 320 from Nuneaton. In descending the 1 in 330–410–326 from Roade speed increased in 6 miles from 88½ to 100 m.p.h., and the three-figure mark was again all but reached at King's Langley with a maximum of 99 m.p.h. From Bletchley up to Tring the 15·0 miles were run in 10 min. 13 sec., at an average of 88·1 m.p.h., and the entire 69·9 miles from Welton to Willesden were covered in 47 min. 4 sec., at an average of 89·1 m.p.h., so beating the flying average of 87·5 m.p.h. over 70·0 miles maintained on the record Cheltenham Flyer run of June 6, 1932, with a load of 270 tons, as compared with the latter's 195 tons, and over an undulating as compared with a level route.

L.M.S.R. TRIAL TRIP OF "CORONATION SCOT," JUNE 29, 1937

Engine, 4-6-2 No. 6220, *Coronation*
Driver, T. J. Clarke, Fireman, J. Lewis (Crewe)
Load, 8 cars, 263 tons tare, 270 tons gross

Distance		Sched.	Actual	Speeds
Miles.		Min.	Min. Sec.	M.p.h.
0·0	EUSTON	0	0 00	—
1·0	*Milepost* 1	—	2 39	32
5·4	WILLESDEN JC.	8	7 53	68
11·4	Harrow	—	12 27	79
17·4	WATFORD JC. ..	18	17 02	86½
24·5	Hemel Hempstead	—	22 20	80½
31·7	TRING	30	27 45	80½
40·2	Leighton	—	33 56	87½/*75
46·7	BLETCHLEY ..	41	38 57	82
52·4	Wolverton	—	43 08	86/*77½
59·9	Roade	51	48 56	76½
62·8	BLISWORTH ..	53½	51 09	86
69·7	Weedon	—	56 20	*77
75·3	Welton	—	60 38	82/78
82·6	RUGBY	70	66 28	85/*39
88·1	Brinklow	—	72 20	79
97·1	NUNEATON ..	82	79 05	83
102·3	Atherstone	—	83 08	*72
110·0	TAMWORTH ..	94	89 24	*73
116·3	LICHFIELD ..	99	94 25	76½/72
124·3	Rugeley	106	100 46	80½/*71
127·2	Colwich	—	103 20	*60
133·6	STAFFORD ..	115	109 56	70½/*30
138·9	Norton Bridge ..	120	115 45	60
147·6	Whitmore	127	122 48	85
153·3	Betley Road ..	—	126 25	108
156·0	*Milepost* 156 ..	—	127 53	113
158·1	CREWE	135	129 46	—
0·0	CREWE	0	0 00	—
4·8	Betley Road ..	—	6 06	71½
10·5	Whitmore	11	10 42	†80½
19·2	Norton Bridge ..	18	16 51	90/*74
24·5	STAFFORD ..	23	20 58	82/*30
30·9	Colwich	—	27 05	80/*71
33·8	Rugeley	31	29 18	90
41·8	LICHFIELD ..	37	34 44	88/92
48·1	TAMWORTH ..	42	38 55	90
55·8	Atherstone	—	44 41	*71
61·0	NUNEATON ..	54	48 29	90
66·7	Shilton	—	52 29	86/93½
70·0	Brinklow	—	54 42	*85
75·5	RUGBY	66	59 27	*40
82·8	Welton	—	65 46	‡75/86
88·4	Weedon	—	69 41	92/*79
95·3	BLISWORTH ..	82	74 24	92
98·2	Roade	84	76 22	88½
105·7	Wolverton	88½	81 08	100/*83
111·4	BLETCHLEY ..	93	85 10	89
117·9	Leighton	—	89 32	93/*85
122·0	Cheddington ..	—	92 21	89/87
126·4	TRING	107	95 23	86½
133·6	Hemel Hempstead	—	100 16	93
140·7	WATFORD JC. ..	117½	104 53	99/*84
146·7	Harrow	—	109 00	96
152·7	WILLESDEN JC..	127	112 50	*85
158·1	EUSTON	135	119 00	—

* Service slack.
† At summit of Madeley bank.
‡ On entering Kilsby Tunnel.

The L.N.E.R. Runs

The L.N.E.R. down journey of the Coronation was made with strict adherence to schedule throughout, and the latter was based on the ordinary Silver Jubilee times. It was of interest, however, as showing the effect of a 40 per cent. heavier load than the Silver Jubilee on the performance. There was a loss of a minute on schedule to Hatfield, but the train was ¾-min. ahead through Peterborough, and through Grantham on time, after which it was run slowly to Barkston North Junction, and taken round the triangle in readiness for the return journey. Notable features of the down trip were the manifest ability of the engine to maintain approximately 90 m.p.h. on the level with this load, as, for example, in the vicinity of Tempsford; the drop only from 80½ to 75 m.p.h. up the 3 miles at 1 in 200 from Huntingdon to milepost 62; and excellent climb of the long ascent to Stoke, with its average of 77·1 m.p.h. over the 15·3 miles from Tallington to the summit, and minima of 73 m.p.h. on the 4½ miles at 1 in 200 and 71½ on the 3 miles at 1 in 178. The 40·7 miles from Hitchin to Yaxley were covered at an average of 85·7 m.p.h.

As on the previous day's L.M.S.R. run, the more notable achievements were those of the up journey. The train started slowly round the Barkston south curve on to the main line, but by Grantham had reached 66 m.p.h., after which came a steady acceleration up 1 in 200 to 69 at Stoke. The maximum of 109 m.p.h. was attained over the mile between posts 91 and 90, near Essendine, and 8 miles (97 to 89, or, roughly, Corby to Essendine) were covered at an average of 100·5 m.p.h. Subsequent feats of considerable note, with a 325-ton load, were the drop only from 86 to 77½ m.p.h. up Abbots Ripton bank (4½ miles at 1 in 200), and the recovery from a bad relaying check through St. Neots to 86 m.p.h. on faintly rising grades to Biggleswade, 83½ minimum on 2 miles at 1 in 264–330 past Langford, 90 m.p.h. past Three Counties, 82 minimum up 2½ miles at 1 in 264–200 to Hitchin, and 76½ mini-

L.N.E.R. TRIAL TRIP OF "CORONATION," JUNE 30, 1937

Engine, 4-6-2 No. 4489, *Dominion of Canada*
Driver, G. Burfoot, Fireman, W. Middleton (King's Cross)
Load, 9 cars, 314 tons tare, 325 tons gross

Distance		Sched.	Actual	Speeds
Miles		Min.	Min. Sec.	M.p.h.
0·0	KING'S CROSS ..	0	0 00	—
2·5	FINSBURY PARK	—	5 01	45
5·0	Wood Green ..	—	7 41	62½
9·2	New Barnet ..	—	11 48	61
12·7	Potter's Bar ..	—	15 22	57½
17·7	HATFIELD ..	18½	19 29	83½
23·5	Woolmer Green ..	—	23 59	71½
28·6	Stevenage	—	28 08	71½
31·9	HITCHIN	29½	30 35	—
37·0	Arlesey	—	34 03	92½
41·1	Biggleswade ..	—	36 46	93½
44·1	Sandy	—	38 43	90
47·5	Tempsford	—	40 58	92½
51·7	St. Neots	—	43 58	86
56·0	Offord	—	46 59	*73
58·9	Huntingdon ..	48½	49 17	80½
62·0	*Milepost* 62 ..	—	51 43	75
69·4	Holme	—	56 53	92½
75·0	*Fletton Jc.* ..	—	60 51	—
76·4	PETERBOROUGH	63½	62 50	*21
79·5	*Werrington Jc.* ..	—	67 03	—
81·9	Helpston	—	69 05	74
84·8	Tallington	—	71 27	79
88·6	Essendine	—	74 17	82
92·2	Little Bytham ..	—	76 57	79
97·1	Corby	—	80 53	75
100·1	*Stoke*	—	83 22	71½
102·0	Great Ponton ..	—	84 53	82
105·5	GRANTHAM ..	†87½	†87 34	*70
0·0	GRANTHAM ..	†0	†0 00	66
3·5	Great Ponton ..	—	3 03	68
5·4	*Stoke*	—	4 45	69
8·4	Corby	—	7 03	86½
13·3	Little Bytham ..	—	10 04	102½
16·9	Essendine	—	12 04	109
20·7	Tallington	—	14 35	—
23·6	Helpston	—	16 34	92
26·0	*Werrington Jc.* ..	—	18 20	*63
29·1	PETERBOROUGH	23½	20 53	*26
32·9	Yaxley	—	26 22	—
38·1	*Connington*	—	30 14	86
42·0	Abbots Ripton ..	—	33 07	‡77½
46·6	HUNTINGDON ..	38½	36 37	85
49·5	Offord	—	38 51	*73
53·8	St. Neots	—	42 25	71½
			p.w.s.	30
58·0	Tempsford	—	47 51	71
61·4	Sandy	—	50 30	82
64·4	Biggleswade ..	—	52 40	86
68·5	Arlesey	—	55 34	90
73·6	HITCHIN	59½	59 11	82
76·9	Stevenage	—	61 48	76½
82·0	Woolmer Green ..	—	65 41	79
87·8	HATFIELD ..	70½	69 44	90
92·8	Potter's Bar ..	—	73 29	77½
100·5	Wood Green ..	—	79 44	*64
103·0	FINSBURY PARK	—	82 06	—
105·5	KING'S CROSS ..	86½	86 03	—

* Service slack. † Passing time. ‡ Minimum on Abbots Ripton bank; 76½ on subsequent level to milepost 62.

mum up the final 3½ miles at 1 in 200 to Stevenage. The entire 12·5 miles' ascent from Biggleswade to Stevenage was therefore covered at an average speed of 82·1 m.p.h. Into King's Cross the running was very cautious, speed being reduced to 64 m.p.h. as far out as New Southgate, but the schedule from Grantham had been slightly improved on, notwithstanding the St. Neots relaying check, which is calculated to have cost 2¾ min. This leaves a net time of 83¼ min. for the 105·5 miles from Grantham to King's Cross, giving a pass-to-stop average of 76·0 m.p.h.

Railway and Other Reports

Egyptian Delta Light Railways.—The directors announce that no dividend has been declared on the preference shares of this company for the year ended March 31, 1937.

North Western Road Car Co. Ltd.—This company, which is controlled jointly by the L.M.S.R. and L.N.E.R. Companies and by Tilling & British Automobile Traction Limited, secured in the year ended March 31, 1937, a profit, after providing for depreciation, of £120,160 (against £96,755), and a net profit of £95,751, compared with £74,957. Adding £23,905 brought forward makes a total of £119,656, from which the sum of £20,000 is transferred to reserve. The ordinary dividend of 10 per cent. and the bonus of 2½ per cent. are at the same rate as for the previous year, but take £93,750, against £75,000, leaving £5,906 to be carried forward. The issued capital was increased during the year to £750,000 by the allotment of 150,000 shares of £1 each. A number of competitive businesses was acquired during the year.

Ribble Motor Services Limited.—For the year ended March 31, 1937, this company, which is controlled jointly by the London Midland & Scottish Railway Company and Tilling & British Automobile Traction Limited, secured a total revenue of £1,396,609, against £1,316,099 for the previous year. After deducting all expenses, including £191,000 (against £175,000) charged to depreciation reserve, there remains a balance of £150,315 which, added to £14,162 brought forward, leaves an available balance of £164,477. From this balance, £40,000 (against £30,000) is allocated to reserve and £13,000 to the preference dividend. The dividend of 10 per cent. on the ordinary shares for the year is at the same rate as for 1935-36, but takes £80,000, as against £65,000, because of the 200,000 new ordinary shares ranking for dividend for the whole year, compared with only a quarter of the previous year, leaving £31,477 to be carried forward. The road passenger businesses of S.P. & T. Adair and Parker Brothers have been acquired. Orders have been placed for new vehicles of the latest type. The new garage at Blackpool and the bus station at Morecambe have been completed, and the new head offices at Preston are nearing completion.

RAILWAY AND OTHER MEETINGS

Mexican Railway Co. Ltd.

The half-yearly meeting of the Mexican Railway Co. Ltd., was held at Winchester House, Old Broad Street, E.C., on June 24, Mr. Vincent W. Yorke, Chairman of the Company, presiding.

The Assistant Secretary read the notice convening the meeting and the auditors' report.

The Chairman, in moving the adoption of the report and accounts, said that he regretted the forecast he made at the last meeting, namely, that there would be an actual operating loss for the half-year, had proved correct. The loss when converted into sterling was as much as £5,954. Inasmuch as this was after showing an increase in gross traffic of 7 per cent., the working of the railway for the half-year was most disappointing. Passenger and express traffic for the half-year showed together a decrease of $75,000, the increase of $63,700 in passengers being more than wiped out by the decrease in express of $138,700. This latter result was due to their having come to the aid of the company which holds the contract for working their express traffic. Of the total increase of $515,000 in freight traffic, $277,000 was due to fuel oil and must be looked upon as fortuitous, being mainly due to the diversion of traffic from the National Railways, owing to the breakdown of a bridge on that system. The increase in foreign and national traffic showed healthy and satisfactory growth.

The increases mentioned, and which amounted to 7 per cent. as compared with the corresponding half-year, had been more than offset by an increase of 9.4 per cent. in expenses. This was very largely accounted for by the payment for the seventh day which was not in full force in the corresponding half-year. There was also an increase in law costs of $54,000 due to the lawsuit brought against them by the fruit companies. The company had again been successful in cashing the coupons of the 40-year non-interest paying bonds, and the proceeds, some £19,300, had been treated as a set-off to loss on operation and debenture interest. The reduced figure, however, was no less than £80,600 to the debit of net revenue account.

A very remarkable increase in gross receipts for the first four months of this year had put a far more healthy complexion on their affairs. The increase was no less than 22 per cent., and though expenses had increased they had not done so in nearly the same proportion. As a result they could show in net receipts for the four months about £23,000. As far as could be judged there was every probability of this high level of gross earnings being maintained for some little time to come.

Giving some impressions of his recent visit to Mexico, the Chairman said that during the 37 years in which he had known the country he had never seen prosperity approaching that which existed today. As regards their own business he had been at great pains to investigate the physical condition of their property and equipment, which was feeling the strain of dealing with the rapidly growing traffic. He had estimated at their last meeting that an expenditure of at least £300,000 would be required to put it into satisfactory condition. At least four steam locomotives of very high power were still needed, and at the present cost of manufacture they were likely to cost £25,000 each. A further expenditure of about £100,000 on relaying, extension of sidings and improvement of stations, all of which were necessary for handling the additional traffic, was highly desirable and should be incurred within the next two years. Further Pullman and freight cars would bring up the total of their requirements to about £240,000. Thanks to the fund for special renewals it should, if present conditions continued so long, be possible to put the whole property into really satisfactory order out of their own resources in very little more than a year's time. The period he had mentioned was well within the period of the moratorium granted them by their debenture holders; and it would, therefore, follow that if the anticipations which he had held out to them were realised, they might be in a position, when the moratorium ceased at the end of next year, to offer them at any rate the hope of something tangible.

Since he had left Mexico four weeks ago, the expropriation of the National Railways had been decreed, and he could only hope that it would not lead to a decrease in rates. In his opinion the high scale of wages prevailing on the railways, and the high cost in pesos of rolling stock and most of the material needed for upkeep, would justify an increase rather than a decrease in rates.

The report and accounts were unanimously adopted.

BEAUTIFYING G.W.R. STATIONS.—Over 500 stations on the G.W.R. system will be brighter this year as the result of a special effort by the station staffs to beautify the platform gardens and surroundings. The company is offering prizes totalling £500 in an "all line" competition for the best station in each of the 12 divisions on its system. In addition to the floral display, the general tidiness and efficiency at the station will be taken into account. For stations where conditions such as concrete-paved platforms rule out gardens, a special prize will be awarded for hanging baskets.

MINISTRY OF TRANSPORT ACCIDENT REPORT

Killamarsh Junction, L.N.E.R.: January 26, 1937

At about 2.58 p.m. the 11.30 a.m. mineral train No. 607, Ecclesfield to Stanton, running under clear signals on the up main, collided with the fifth wagon of the 11.30 a.m. mineral train No. 314, Waleswood to Bulwell, which had over-run the up branch home signal. No. 607 was travelling at about 15 to 20 m.p.h., and No. 314 some 5 m.p.h. faster. The engine and tender of the former were derailed foul of the down main. Twenty wagons were derailed, five being completely wrecked. Considerable damage was done to permanent way and signal and point connections; the end of the central girder of a bridge over the L.M.S.R. was buckled, and a wagon fell over on to that line. The weather was fine and clear, the temperature a little above freezing. The accompanying diagram gives further particulars of the circumstances. Lt.-Colonel E. Woodhouse conducted the inquiry.

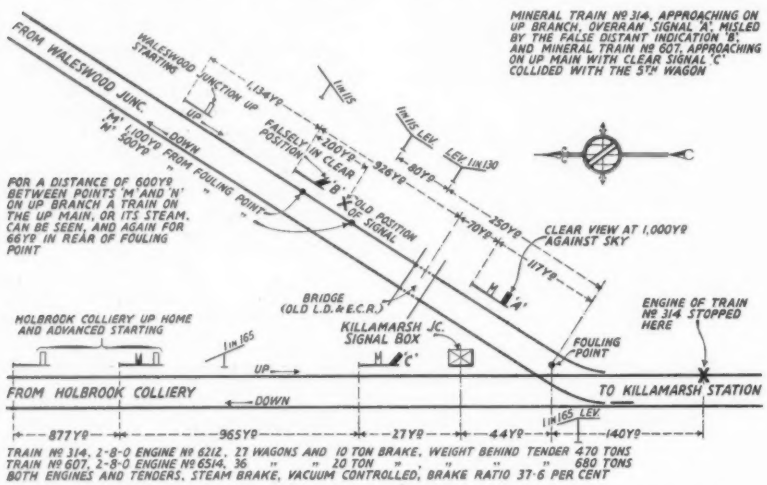

MINERAL TRAIN Nº 314, APPROACHING ON UP BRANCH, OVERRAN SIGNAL 'A' MISLED BY THE FALSE DISTANT INDICATION 'B', AND MINERAL TRAIN Nº 607, APPROACHING ON UP MAIN WITH CLEAR SIGNAL 'C' COLLIDED WITH THE 5TH WAGON
FROM WALESWOOD JUNC.
WALESWOOD STARTING
JUNCTION UP
UP
1,134YDS
1 IN 165
FALSELY IN CLEAR POSITION
200YDS
326YDS
80YDS
1 IN 165 LEV.
LEV. 1 IN 130
'B'
OLD POSITION OF SIGNAL
250YDS
70YDS
CLEAR VIEW AT 1,000YDS AGAINST SKY
117YDS
'A'
'M' 1,100YDS
'N' 500YDS
DOWN
FROM FOULING POINT
FOR A DISTANCE OF 600YDS BETWEEN POINTS 'M' AND 'N' ON UP BRANCH A TRAIN ON THE UP MAIN, OR ITS STEAM, CAN BE SEEN, AND AGAIN FOR 66YDS IN REAR OF FOULING POINT
BRIDGE (OLD L.D. & E.C.R.)
KILLAMARSH JC. SIGNAL BOX
ENGINE OF TRAIN Nº 314 STOPPED HERE
FOULING POINT
HOLBROOK COLLIERY UP HOME AND ADVANCED STARTING
1 IN 165
'C'
UP
FROM HOLBROOK COLLIERY
DOWN
TO KILLAMARSH STATION
1 IN 165 LEV.
877YDS
965YDS
27YDS
44YDS
140YDS
TRAIN Nº 314, 2-8-0 ENGINE Nº 6212, 27 WAGONS AND 10 TON BRAKE, WEIGHT BEHIND TENDER 470 TONS
TRAIN Nº 607, 2-8-0 ENGINE Nº 6514, 36 " " 20 TON " " " " 680 TONS
BOTH ENGINES AND TENDERS, STEAM BRAKE, VACUUM CONTROLLED, BRAKE RATIO 37·6 PER CENT

Diagram illustrating the accident and giving additional particulars

The up branch distant, alleged to have been off when No. 314 passed it, had been renewed a few days before. Curvature in a cutting prevents a driver seeing this signal until he is about 130 yd. from it; his view of its arm is obstructed to some extent at first by the lattice girders of a footbridge, but the signal can be seen clearly at about 90 yd. Its repeater, close to the signal lever, had been renewed at the same time. The wire can be adjusted by manipulation of a small winch in the signal box; the chain passes under a pedestal wheel and over a gain-stroke wheel suspended from the front tail of the lever, thence under a second pedestal wheel and round a " flat " wheel on the leading-off timber.

The view of the up branch home signal is obscured only by the overbridge 145 yd. short of it; it comes into view again at a range of 70 yd.

The one daily up booked passenger train over the branch, from Cleethorpes to Leicester, preceded No. 314, held at Waleswood to allow it to pass; No. 607 was stopped at Holbrook Colliery for the same purpose. Killamarsh Junction is authorised under certain conditions to accept trains not conveying passengers on the up main or up branch under the warning arrangement, and Signalman Whiston, having been told by Control that No. 607 was to precede No. 314, in due course cleared all signals for the former accepting the latter under B.T. Rules.

Driver Walker, of No. 607, said that on starting from Holbrook Colliery home signal he observed the advanced starting and Killamarsh Junction distant below it off, but saw nothing of No. 314 until passing that box, when he became aware of it alongside his engine; he had previously closed his regulator. He heard no warning whistles and thought No. 314 might have been travelling 10 m.p.h. faster than he. This was generally confirmed by the fireman, Freeman.

There was no suggestion that the up branch home was not at danger when No. 314 ran past, but the crew of that train maintained that its distant was off, though found on by the guard when going back to protect his train. Col. Woodhouse obtained independent evidence of this from a youth, Eric Mallender, who was working in a field, about 250 yd. from the signal. He saw it was off for the Cleethorpes train, and again when No. 314 passed five minutes later, but did not see if it was restored between them. He also saw it was off after hearing the collision, but going to the junction to see what had happened he noticed it had been returned to caution.

Driver Fisher, of No. 314, realising his train had been accepted under the warning arrangement, ran from Waleswood Junction starting signal at slow speed until he sighted the distant signal, which was off, at about 40 degrees above horizontal. The hand brake was released and the regulation partly opened, to keep couplings tight in the dip below the bridge, avoid surging, and risk of breakaway. Fisher said he first saw the home signal at danger when about 250 yd. from it, and applied the steam brake, which acted without delay. He did not reverse and gave contradictory reasons for it, first saying he thought it better, being unable to stop at the home signal, to run through the junction ahead of No. 607, so that the engines themselves might not meet. Later he said he was unaware of the proximity of that train and thought he would be able to stop, without having to reverse, which might pick the wheels up. He remembered the fireman calling out that the home signal was on; this was at the overbridge and after he had seen it. Only close to the signal did he realise he could not stop, whistled for the guard's brake, releasing his own on seeing No. 607 approaching. He could have seen the signal sooner had he looked for it, but was engaged in opening the regulator, notching up and assuring himself that the train was following intact.

Fireman Whitehead confirmed the first part of this evidence. He was firing between the distant and the overbridge, then saw the home was on and shouted. He was sure Fisher gave no previous indication that he had seen it. Guard Davies saw the distant was off and noticed the home was on when the engine passed the overbridge; he screwed his brake on hard. Going back later to protect his train he could see the distant was then on.

Signal Inspector Robinson reached the signal box about 15 minutes after the accident, having heard that the distant signal had given a wrong indication. He found the lever and repeater normal, but could not test the working as damage to connections prevented other levers, which released the distant, from being moved. Robinson described the examination he made of the distant signal wire run, which was direct and well away from the damage, crossing the rails close to the signal only. Pulling the wire by hand he found it not unduly tight and saw that the signal responded properly. Every part of the transmission worked freely, and no tools or stacked material were found that might have interfered with it. He was quite unable to account for the false clear indication; no alterations or adjustments had been necessary since.

Signalman Whiston, Killamarsh Junction, noticed no unusual resistance when pulling the distant lever for the Cleethorpes train, and saw the repeater move from " on " to " off," not from the wrong position. But when he replaced the lever he did not notice the repeater and could not account for the omission. It was some minutes after the collision that he looked at the

repeater when it was showing " on "; he had no recollection of Robinson entering the signal box. Whiston said the signal must have stuck when the lever was replaced behind the Cleethorpes train; the wire must have jammed somewhere, freeing itself from vibration caused by train No. 314. The signal was worked comparatively rarely, only twice in the six days since its renewal. Whiston denied having adjusted the wire in that time, before or after the accident. The signalman on the previous shift had neither worked nor adjusted the signal that day, but had had to tighten the wire to work it about noon on the previous day.

Col. Woodhouse found the signal worked easily; with the lever replaced very gently the arm invariably returned to caution. To simulate the effect of contraction of the wire through cold, it was gradually tightened by means of the adjuster, testing the response of the signal to the lever from time to time. At a certain stage, though the tension of the wire was insufficient to move the arm from the caution position when the lever was normal, it was nevertheless great enough to hold it properly " off " after the lever had been pulled and put back smartly; pulling presented no great difficulty, though some increase of resistance could be felt towards the end of its stroke. The arm returned, however, immediately the wire was slackened by half a turn, or thereabouts, of the adjuster handwheel, with the lever normal.

As a check upon Driver Fisher's statements a trial was made with a train of similar composition and weight. The engine was in charge of Fisher and Whitehead; the same guard, Davies, was employed. The weather was similar to that on January 26, though the state of the rails was considered to be slightly more favourable for stopping. Two trial runs were made in an endeavour to reproduce the running as nearly as possible. The engine brakes were applied at the point at which Fisher stated that he first noticed the home signal; speed there was estimated at 30 m.p.h. on both runs; Guard Davies used his hand brake in the manner set forth in his evidence. On the first run the steam brake alone, without sand, was used. The train stopped with the front of the engine 50 ft. beyond the fouling point. The steam brake was kept fully applied and was not released at the signal box, as Fisher claimed to have done to minimise the effects of the collision. On the second run the steam brake was fully applied, the engine immediately reversed, and the regulator partly opened, sand being used freely; the driving wheels did not pick up; the train stopped with the front of the engine 59 yd. short of the fouling point.

Inspecting Officer's Conclusions

The evidence of the trainmen, supported by the independent witness, that the distant signal was off when No. 314 passed may be accepted. Whiston's duty was to assure himself that it responded when he replaced its lever after the Cleethorpes train passed. Responsibility for the accident falls mainly on him. He has 28 years as signalman, with a very good record. Driver Fisher cannot be criticised for increasing speed after finding the distant off, but his excuse for not realising the position of the home is not convincing. It would take about 1¼ minutes to run from the distant to the point where he said he first saw the home, greater than needed for the duties he mentioned, with the latter signal in full view. His explanation of his actions after he had seen it was not altogether satisfactory. Col. Woodhouse inclines to the opinion that Fisher did not observe the home signal until Whitehead shouted, when they were 70 yd. from it, and the trials lead Col. Woodhouse to believe that Fisher might have stopped, had he done everything in his power, even in 250 yd. The accident might have been avoided had he been more alert. He has 18 years as driver, with a good record.

Meteorological records for the neighbourhood of Sheffield show it to have been colder on January 26 than on the previous day, the temperature scarcely rising above freezing. The signal wire had been tightened by Rowlett about noon on January 25, and it is a reasonable deduction that it had become unduly tight when Whiston cleared the signal for the Cleethorpes train, but not enough to move the arm to " wrong." As in the test, working the lever did not allow the arm to return to caution, which accords with Mallender's evidence. Col. Woodhouse concludes that the arm was returned by Whiston using the adjuster, though he denied doing it, for Robinson did not find the wire particularly tight. Whiston's action may have been automatic; his evidence needs accepting with reserve, for he could not remember talking to Robinson.

Remarks and Recommendations

Apparatus of a comparatively simple nature is provided at many signal boxes, by which acceptance of a train is prevented unless the distant signal arm is at caution. This safeguard is specially valuable where a distant signal is farther than usual from the box on account of a steep falling gradient, and the adjustment of its wire is accordingly more sensitive to temperature changes, or where the view to be obtained of the home signal is poor. If the warning acceptance of freight trains is authorised under such conditions, the effect of a misleading indication of the distant signal may be very serious. The equipment of signal boxes with such apparatus is being extended, and in that connection Col. Woodhouse recommends that regard should be paid to the foregoing considerations, and not only to the importance of the line.

Railway Servants' Orphanage

The annual meeting of the committee and subscribers of the Railway Servants' Orphanage was held at the Orphanage, Derby, on Monday, June 28. The Chairman, Mr. Gordon B. Robotham, presided. After the Secretary, Mr. C. A. Moult, had read the auditors' report, the Chairman presented the report of the committee and statement of accounts. These showed that the sixty-third year of the home's existence had been one of steady progress. During the period under review 45 children had been admitted and 50 had left. On April 30, 1937, there were on the books a total of 220 boys and girls. The health of these young people had been very good and their conduct excellent, while their scholastic and athletic attainments had been noteworthy. The income for the year showed a net increase of £159. The total expenditure for the year was £11,944, a decrease of £977 on the previous year. The average cost per child for maintenance worked out at £47 5s. A scheme for a new block of buildings providing study rooms for the boys and girls had been approved, but £2,500 was still needed for this purpose.

The committee expressed regret at the death of two colleagues, Mr. W. N. Bancroft and Mr. A. Wilson, O.B.E. Lt.-Colonel J. H. Follows and Messrs. L. C. Geach and A. L. Newton, the retiring members, were re-elected. The sincere thanks of the committee were accorded to all those who had supported the orphanage during the year, and in particular to the Derby Concert Committee, which had added the sum of £2,067 to the splendid total of £26,693 raised through its efforts since 1923. A hearty vote of thanks was proposed to Sir W. Guy Granet, the Treasurer, for his services, and another to the collectors—one of whom, Mr. Westropp, had been collecting for 57 years.

After the meeting, the annual prize-giving to the boys and girls took place. After the Rt. Hon. Lord Burghley, M.P., a Director of the L.N.E.R., had presented the awards, a charming concert was given by the young people to an appreciative audience.

L.N.E.R. Improvements at Victoria Dock, Hull.—To increase the facilities for handling timber imports at Victoria Dock, Hull, the L.N.E.R. is providing three new berths, and extra accommodation for stacking timber and storing wagons. The new sidings will have a capacity of 620 bogies, and the berths will provide 1,000 ft. extra quayage equipped for the discharge of timber direct from the vessels to rail.

NOTES AND NEWS

Congress of the Institute of Transport, 1938.—Arrangements are in progress for the holding of the 1938 Congress of the Institute of Transport at Edinburgh from Wednesday, May 18, to Saturday, May 21, 1938, inclusive.

Engineers' Study Group on Economics.—By arrangement with the Institute of Sociology, the new offices of the Engineers' Study Group are at Le Play House, 35, Gordon Square, W.C.1 (Tel.: Euston 3151.) We refer to the activities of this group in an editorial note on page 1.

Air-Conditioning in Indo-China.—The first air-conditioned coaches for Indo-China are being built in France for the Indo-China State Railways. The air-conditioning equipment is being manufactured in the United States, and is to be applied to 22 sleeping and dining cars for first, second, and third class service.

Insurance of Live Stock.—The railway companies of Great Britain have decided to continue for a further period of twelve calendar months from July 1, 1937, the experimental scheme of insurance introduced on July 1, 1935, for live stock conveyed by passenger train or other similar service and/or railway-owned vehicles used for the transport of passenger-rated live stock.

New French Railway and Tourist Office in London.—The new organisation covering the French Railways and National Tourist Office, whose new premises at 179, Piccadilly, were opened by the French Ambassador last week, as described on page 1221 of our issue for June 25, is under the patronage of the High Commissioner for Tourism, Monsieur Roland-Marcel, and the French railways, who have entrusted its direction to Mr. J. de Kerdrel.

National Railways of Mexico.—President Cardenas, according to a Reuters message, has decreed the expropriation by the Mexican Government of the National Railways of Mexico, a corporation which owns and operates 14,400 miles of railways. The Government will take entire control of the corporation in which, though it has been privately managed, it has long held a 51 per cent. interest. More than 20 years ago the Government took over the National Railways, but soon returned them to private management.

Collision on Chilean State Railways.—A head-on collision at Valparaiso between two local trains of the Chilean State Railways on June 28, is reported to have resulted in 7 deaths and 30 injured.

Imperial Airways Exhibition Train.—In July the Imperial Airways exhibition train, which consists of two specially-equipped coaches fitted up to illustrate air travel progress, will begin its tour. Starting from Victoria station, London, it will be seen at various places in the southern counties before visiting other parts of the country. The exhibition includes a number of models of historical and modern aircraft of transport types. There are also working models of airway wireless equipment, together with models, maps, and photographs illustrating the development of the Empire air lines.

Level Crossing Collision near Baghdad.—A lorry was struck by a train at a level crossing on the Iraq State Railways, three miles from Baghdad, on June 16, and the eighteen persons in the lorry were killed. The driver of the lorry was attempting to cross the line in front of the train.

Portsmouth Electrification Opening.—The official opening ceremony of the Southern Railway's electrification extension from Hampton Court junction to Portsmouth took place yesterday. A special train left Waterloo at 10.48 a.m., and was met at Portsmouth and Southsea station by the Lord Mayor of Portsmouth. The full public service of electric trains begins on Sunday next, July 4.

Level Crossing Accident in Essex.—The Essex coroner, Dr. L. F. Beccle, held an inquest on June 16 on the body of S. A. Stedman, killed when his car was run down by an L.N.E.R. express at Wickford, Essex, in consequence of a gateman, A. G. James, letting the car through at a level crossing. Evidence was given which made it appear that the gateman had not received sufficient instructions how to carry out his work, and the Coroner commented on the man's competence. The verdict was "accidental death."

French Streamlined Locomotive.—The French State Railways streamlined locomotive shown on page 1209 of last week's issue of THE RAILWAY GAZETTE is equipped with Timken axleboxes on the tender, and it is a matter of interest that after a trial run it was decided to equip the axleboxes of the leading bogie similarly. The French State Railways now have 15 tenders mounted on Timken axleboxes, and 24 leading bogies so equipped. All the bearings and axleboxes have been supplied by S.A. Française Timken, of Paris, the French associate of British Timken.

Locomotive Naming Ceremonies at King's Cross.—A triple event occurred at King's Cross station on June 29 when the last of the five locomotives constructed to haul the L.N.E.R. Coronation expresses were named. The Hon. W. J. Jordan, High Commissioner for New Zealand, unveiled the nameplate on No. 4492 *Dominion of New Zealand*. He was followed later by Malik Sir Firoz Khan Noon, High Commissioner for India, and the Hon. C. T. te Water, High Commissioner for the Union of South Africa, who performed similar ceremonies for No. 4490 *Empire of India*, and No. 4488 *Union of South Africa* locomotives, respectively. The last locomotive has by the courtesy of the South African authorities been fitted with the same type of whistle as that in use on the S.A.R.

Wellington (New Zealand) New Station.—The new station at Wellington, New Zealand, described in our issue of November 1, 1935, was formally opened by Lord Galway, the Governor-General, on June 19. Owing to pressure of re-armament work the electrical equipment for the complementary Wellington—Pakakariki electrification has not yet all been received.

Paris-Lisbon Train Service to be Restored.—At a conference between representatives of the railways concerned at Bayonne, on June 18, it was decided to restore the train service between Paris and Lisbon, the route of which in Spain lies through territory held by the Spanish insurgents. No through bookings will be given, however, to stations in Spain.

Oil from Coal in Manchuria.—Mr. Y. Matsuoka, President of the South Manchuria Railway Company, states that the extraction of oil fuel from coal in commercial quantities will be started shortly on a process invented at the Japanese Naval fuel depot at Tokuyama. He estimates that there will eventually be an annual production by this method of 300,000 tons of oil.

Accident at Swanley Junction, Southern Railway.—Late on June 27 last the 8.17 p.m. up passenger train from Margate to Victoria, via Ashford and Maidstone, was passing through Swanley Junction when, for some reason not yet explained, it was diverted into a siding leading off the up branch platform line, where it crashed into some vehicles and did considerable damage to sub-station equipment near the buffer stops. The locomotive and several coaches were derailed and severely damaged. Four persons were killed and about 20 injured.

Railway Club Lecture on Clyde Steamers.—The Railway Club concluded the 1936/37 session on Thursday, June 3. The meeting was held at the Royal Scottish Corporation Hall, Fetter Lane, E.C.4, and an interesting paper was read by Mr. L. H. Bailey on "Railway-Owned Steamers on the Clyde." With the aid of a diagram, Mr. Bailey described the various railway routes from Glasgow to the Clyde piers, pointing out the former competitive Caledonian and Glasgow & South Western Railways routes. The Caledonian began steamer services in 1888, when the Caledonian Steam Packet Company was formed, and the G. & S.W.R. followed in 1891. From Helensburgh on the north bank, the North British Railway had run steamers since 1866. The lecturer then gave a short description of all the ships used by these companies and their successors, the L.M.S.R. and L.N.E.R. The routes and services were mentioned, and in conclusion an excellent series of lantern slides was shown, illustrating the ships referred to and the places served.

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 25th Week			Totals to Date		
	1937	1936	Inc. or Dec.	1937	1936	Inc. or Dec.
L.M.S.R. (6,871½ mls.)	£	£	£	£	£	£
Passenger-train traffic...	609,000	608,000	+ 1,000	11,461,000	11,015,000	+ 446,000
Merchandise, &c. ...	511,000	475,000	+ 36,000	12,234,000	11,890,000	+ 344,000
Coal and coke ...	214,000	198,000	+ 16,000	6,653,000	6,179,000	+ 474,000
Goods-train traffic ...	725,000	673,000	+ 52,000	18,887,000	18,069,000	+ 818,000
Total receipts	1,334,000	1,281,000	+ 53,000	30,348,000	29,084,000	+1,264,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic...	381,000	378,000	+ 3,000	7,490,000	7,173,000	+ 317,000
Merchandise, &c. ...	334,000	317,000	+ 17,000	8,460,000	8,092,000	+ 368,000
Coal and coke ...	215,000	197,000	+ 18,000	6,297,000	5,907,000	+ 390,000
Goods-train traffic ...	549,000	514,000	+ 35,000	14,757,000	13,999,000	+ 758,000
Total receipts	930,000	892,000	+ 38,000	22,247,000	21,172,000	+1,075,000
G.W.R. (3,738½ mls.)						
Passenger-train traffic...	237,000	226,000	+ 11,000	4,770,000	4,584,000	+ 186,000
Merchandise, &c. ...	201,000	194,000	+ 7,000	4,919,000	4,736,000	+ 183,000
Coal and coke ...	108,000	90,000	+ 18,000	2,815,000	2,534,000	+ 281,000
Goods-train traffic ...	309,000	284,000	+ 25,000	7,734,000	7,270,000	+ 464,000
Total receipts	546,000	510,000	+ 36,000	12,504,000	11,854,000	+ 650,000
S.R. (2,153 mls.)						
Passenger-train traffic...	369,000	361,000	+ 8,000	7,376,000	6,975,000	+ 401,000
Merchandise, &c. ...	68,500	68,000	+ 500	1,507,500	1,563,500	− 56,000
Coal and coke ...	26,500	27,000	− 500	780,500	786,500	− 6,000
Goods-train traffic ...	95,000	95,000	—	2,288,000	2,350,000	− 62,000
Total receipts	464,000	456,000	+ 8,000	9,664,000	9,325,000	+ 339,000
Liverpool Overhead ... (6½ mls.)	2,041	1,324	+ 717	31,297	28,618	+ 2,679
Mersey (4½ mls.) ...	4,118	4,072	+ 46	104,796	100,965	+ 3,831
*London Passenger Transport Board ...	573,800	576,900	− 3,100	28,732,000	28,476,900	+ 255,100
IRELAND.						
†Belfast & C.D. pass. (80 mls.)	3,183	3,855	− 672	51,993	53,766	− 1,773
,, ,, goods	530	514	+ 16	12,580	14,091	− 1,511
,, ,, total	3,713	4,369	− 656	64,573	67,857	− 3,284
Great Northern pass. (543 mls.)	12,100	11,600	+ 500	225,400	223,850	+ 1,550
,, ,, goods	8,900	8,400	+ 500	235,350	250,900	− 15,550
,, ,, total	21,000	20,000	+ 1,000	460,750	474,750	− 14,000
Great Southern pass. (2,075 mls.)	41,182	42,397	− 1,215	764,533	773,039	− 8,506
,, ,, goods	41,740	37,304	+ 4,436	1,034,180	1,045,781	− 11,601
,, ,, total	82,922	79,701	+ 3,221	1,798,713	1,818,820	− 20,107

* 52nd week (before pooling) † 26th week

Diesel Railcar Demonstration on L.M.S.R.

On Wednesday last a demonstration run was made between Euston and Tring, on the L.M.S.R., with the new 240 b.h.p. diesel-mechanical railcar built by the Metropolitan-Vickers Electrical Co., Ltd., in conjunction with the Metropolitan-Cammell Carriage & Wagon Co., Ltd. Known as the Metro-Vick-Cammell railcar, the new vehicle embodies the designs and experience of Ganz & Co., of Budapest, whose licence is held by the two British firms. The car just built is of the double bogie type and has 58 seats within a length of 67 ft. and on a weight of 34½ tons. The top service speed is 75-80 m.p.h. Details of the construction of the car will be given in our *Diesel Railway Traction Supplement* next week.

The run out to Tring had no special features, but in the up direction the 31¾-mile trip was made non-stop and without any signal checks in 30 min., speed being maintained for long stretches at 70-74 m.p.h. Among those present on the trip were Mr. E. J. H. Lemon, Vice-President, L.M.S.R.; Mr. S. E. Fisher, Assistant Chief Operating Manager, and Mr. R. A. Riddles, Principal Assistant to the Chief Mechanical Engineer, L.M.S.R.; Mr. F. R. Potter, Superintendent of the Line, Great Western Railway; Lt.-Col. A. H. L. Mount, Chief Inspecting Officer of Railways, Ministry of Transport; Sir Felix Pole, Mr. P. S. Turner, Mr. W. C. Lusk, and Mr. K. Baumann, Directors of the Metropolitan-Vickers Electrical Co., Ltd.; Mr. A. J. Boyd, Managing Director, and Mr. F. J. Hills, London Manager, of the Metropolitan-Cammell Carriage & Wagon Co., Ltd.; Mr. V. Lehel, Ganz & Co.; Mr. W. L. Watson, Chief Engineer, Crown Agents for the Colonies; Major E. Slaughter, Agent, Nizam's State Railway, and Mr. T. E. Swallow, Advisory Engineer, South African Railways.

British and Irish Railway Stocks and Shares

Stocks	Highest 1936	Lowest 1936	Prices June 30 1937	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	64¼	45½	62½	+1¼
5% Con. Prefce. ...	126½	116¾	117½	−1
5% Red.Pref.(1950)	113	108½	111½	—
4% Deb.	119½	110½	105½*	−1
4½% Deb.... ...	121	114	111*	−½
4½% Deb.... ...	129	121	117½*	—
5% Deb.	141	134	128½*	—
2½% Deb.... ...	79⅛	74	69½*	—
5% Rt. Charge ...	136½	130	127½*	—
5% Cons. Guar. ...	135¼	127¾	126	−1
L.M.S.R.				
Ord.	35⅝	17	33½	+½
4% Prefce. (1923)	83	52½	77	+½
4% Prefce. ...	92¾	81	87	+1
5% Red.Pref.(1955)	109¼	103¼	104	—
4% Deb.	111¾	105 9/16	102	−1
5% Red.Deb.(1952)	119⅝	115½	112½	—
4% Guar. ...	106¾	101⅝	99	−½
L.N.E.R.				
5% Pref. Ord. ...	14	9	10	—
Def. Ord.	7¼	4¾	5	—
4% First Prefce.	79¼	55¼	72½	+2½
4% Second Prefce.	31⅞	18¼	26	+1
5% Red.Pref.(1955)	100½	77¾	96	—
4% First Guar. ...	104½	98¾	98½	−½
4% Second Guar.	99	90	91½	−½
3% Deb.	85¾	79	76½	−1½
4% Deb.	109¾	104½	100½	−1½
5% Red.Deb.(1947)	116¼	110½	109½	—
4½% Sinking Fund Red. Deb.	111½	107½	107	—
SOUTHERN				
Pref. Ord.... ...	98¾	82½	92	—
Def. Ord.	27⅝	20⅛	22	—
5% Pref.	120¾	118½	116½	—
5% Red.Pref.(1964)	119¾	115¼	115½	—
5% Guar. Prefce.	136	129½	127	—
5% Red.Guar.Pref. (1957)	120	115¾	115½	—
4% Deb.	117 15/16	109½	103½	−1½
5% Deb.	140	134	126½	—
4% Red. Deb. 1962–67	116½	110	108½	—
BELFAST & C.D.				
Ord.	9	4½	4	—
FORTH BRIDGE				
4% Deb.	107	105	100½*	—
4% Guar. ...	107 5/16	104	100½*	—
G. NORTHERN (IRELAND)				
Ord.	19½	9¾	7¾	—
G. SOUTHERN (IRELAND)				
Ord.	63	41	34½	—
Prefce.	65	46	46	−2½
Guar.	97¼	81	72½	+½
Deb.	99¾	83¼	89	—
L.P.T.B.				
4½% "A" ...	127¾	121	116½	—
5% "A"... ...	138¼	133½	126½	—
4½% "T.F.A." ...	111½	108⅛	106	—
5% "B"... ...	131¾	123¾	117½	—
"C"	112½	93	79	−2
MERSEY				
Ord.	40¾	23	27½	—
4% Perp. Deb. ...	103	98	99	—
3% Perp. Deb. ...	78	74⅝	75½	—
3% Perp. Prefce.	68⅞	63¼	65½	—

* ex dividend

CONTRACTS AND TENDERS

G. H. Sheffield & Co. (Engineers) Ltd. has received an order from the Crown Agents for the Colonies for 26 Sheffield-Twinberrow carriage bogies, 5-ft. 6-in. gauge, required for the Ceylon Government Railway.

Whitelegg & Rogers Limited has received orders for Ajax grease lubricating equipment for six 4-8-4 + 4-8-4 Beyer-Garratt locomotives now under construction by Beyer, Peacock & Co. Ltd., for the Nigerian Railway, and a similar equipment required for one 2-8-2 locomotive for the Newfoundland Railway, under construction by the North British Locomotive Co. Ltd.

The L.M.S.R. announces the placing of contracts for several important works schemes, as follow :—

With a London firm for the L.M.S.R. new School of Transport (staff training college) at Derby.

With London and Liverpool firms for the rebuilding of the passenger stations at Moreton, Meols, Leasowe, and Hoylake, in connection with the electrification of the Wirral line.

With a London firm for excavation work in connection with the provision of a new passenger station at Apsley, between Boxmoor and King's Langley (Herts).

With a Liverpool firm for architectural work, and with a Middlesbrough firm for steelwork, in connection with the new booking office at Crewe station.

Nasmyth Wilson & Co. Ltd. has received an order from the Bengal-Nagpur Railway Administration for 17 superheated boilers for HSM class locomotives.

The Bengal–Nagpur Railway Administration has recently placed the following orders :—

Linley & Co. : Quantity of copper pipes.
Howell & Co. Ltd. : 3,000 steel boiler tubes, Aquacidox quality.
Tilghman's Patent Fan Blast Co. Ltd. : Sand-blast plant.

S. A. Gilsoco has received an order from the Egyptian State Railways for 305 metric tons of screw spikes.

Usines Gustave Boel S.A. has received an order from the Egyptian State Railways Administration for piston heads.

The directors of the Great Western Railway Company have authorised the placing of the following contracts :—

For Swindon Works :

Supply of the following machines and equipment :

The British Oxygen Co. Ltd., One universal oxygen cutting machine.

Benrath Machine Tools, One key-seating machine.

Craven Bros. (Manchester) Ltd. and A. Herbert Limited, respectively, Two horizontal milling machines.

Dean Smith & Grace Limited, One sliding, surfacing and screw-cutting lathe.

The Mercury Track & Tractor Co. Ltd., One Mercury general purpose tractor.

The North British Locomotive Co. Ltd. has received an order from the Egyptian State Railways Administration for 20 2-6-0 type locomotives to be supplied at a total price of £157,770.

The North British Locomotive Co. Ltd. has also received an order from the South Indian Railway, to the inspection of Messrs. Robert White & Partners, for five locomotive boilers.

The Bikaner State Railway Administration has placed the following orders, to the inspection of Messrs. Rendel, Palmer & Tritton :—

Vereingte Deutsche Metallwerke A.G., 80 copper firebox plates.
English Steel Corporation Limited, 878 locomotive, carriage, and wagon tyres.
Henricot Steel Foundry Co. Ltd., 156 carriage and wagon axleboxes.
Brown Bayley's Steel Works Limited, 42 laminated and 42 nests of elliptical springs.
Superheater Co. Ltd., 60 superheater elements.

British Timken Limited has recently received the following railway orders :—

London Passenger Transport Board : 2,902 bogie centre pivot bearings with indiarubber rings for surface and tube cars being built by the Birmingham Railway Carriage & Wagon Co. Ltd., Gloucester Railway Carriage & Wagon Co. Ltd., and Metropolitan-Cammell Carriage & Wagon Co. Ltd.

Eastern Bengal Railway : Axleboxes for conversion of trailing trucks of two YF class locomotives through Guest, Keen, Williams Limited.

British Guiana Railway : Axleboxes for two bogie carriage underframes, a repeat order from the Gloucester Railway Carriage & Wagon Co. Ltd., from the Crown Agents for the Colonies.

New Zealand Government Railways : 960 axleboxes for 120 main-line coaches to be built in New Zealand.

Egyptian State Railways Administration : 32 axleboxes for all axles of four 2-4-2 type Sentinel locomotives being built by the North British Locomotive Co. Ltd.

South African Railways and Harbours Administration : 96 axleboxes for 12 dining and kitchen cars being built by the South African Railways and Harbours Administration, 240 axleboxes for 20 12-wheeled tenders for class 23 locomotives being built by Henschel & Sohn A.G. and Berliner Maschinenbau A.G. and 112 axleboxes for 14 electric motor coaches for the Rand electrification, constituting a repeat order, bringing the total number of Timken equipped motor coaches to 104, built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd. and the Birmingham Railway Carriage & Wagon Co. Ltd.

The Crown Agents for the Colonies have recently placed the following orders :—

Brown, Bayley's Steel Works Limited, Steel tyres.
Walker Bros. Ltd., Steelwork for shed.
Superheater Co. Ltd., Superheater spares.
Ericsson Telephones Limited, Switchboards and telephone materials.
H. Allen & Co. Ltd., Switches and crossings.
Chloride Electrical Storage Co. Ltd., Train lighting cells.
T. Robinson & Son Ltd., Travelling bed bender.
Stewarts and Lloyds Limited, Wrought iron tubes.

The New Zealand Public Works Department is calling for tenders, to be presented in Wellington by August 3, for the supply of one or more four-ton battery locomotives, 80 volt, spring mounted, 3-ft. 6-in. gauge, together with spare batteries and cells. Further details can be obtained from the Department of Overseas Trade, London, S.W.1.

The South African Railways & Harbours Administration is calling for tenders (Tender No. 1294) for the supply and delivery of 300 four-wheeled covered cattle wagons, type 1Z-14. Tenders endorsed " Tender No. 1294, 300 type 1Z 14 Wagons " should reach the Secretary to the Tender Board, South African Railways & Harbours Headquarter Offices, Johannesburg, by August 23.

The South African Railways & Harbours Administration is calling for tenders (Tender No. 1380) for the supply and delivery of approximately 50 tons of bridgework with rivets, bolts and nuts, etc. Tenders endorsed " Tender No. 1380 : For Bridgework," should be addressed to the Chief Stores Superintendent, Park Station Chambers, Rissik Street, Johannesburg, to be received by August 16.

Mr. Kung, Chinese Minister of Finance, is now in Washington discussing further credits for the sale of locomotives and other railway equipment to China.

Soviet Orders Placed in the United Kingdom

The total value of the orders placed in the United Kingdom by Soviet trading organisations in April of this year amounted to £1,242,957, as compared with £899,182 in April, 1936. In the first four months of this year orders to the value of £8,611,087 were placed as compared with £3,087,758 in the January-April period of the preceding year. The table below shows orders placed and purchases made in the United Kingdom in April and in the first four months of this year as compared with 1936.

	April, 1936	April, 1937	Jan.-April, 1936	Jan.-April, 1937
Machinery and equipment	18,643	276,001	83,045	3,139,710
Ferro-alloys and steel	22,404	25,693	35,539	27,884
Non-ferrous ores	8,314	40,401	8,314	218,367
Non-ferrous metals	263,730	209,832	1,044,699	2,072,600
Textile (raw materials)	109,748	193,410	675,747	1,100,110
Rubber	397,990	344,394	791,542	1,452,236
Chemicals	53,033	24,023	143,572	111,658
Tea	24,099	86,143	262,458	250,191
Miscellaneous	1,221	43,060	42,842	238,331
Total	899,182	1,242,957	3,087,758	8,611,087

OFFICIAL NOTICES

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS.

APPLICATIONS from qualified candidates are invited for the following post:—

SENIOR DRAUGHTSMAN (Engineering) required by the Kenya and Uganda Railways and Harbours for one tour of 24-48 months' service with prospect of permanency. Salary £480—£20—£600 a year. Free passages and quarters and liberal leave on full salary. Candidates, aged 25-35, preferably single, must have a sound knowledge of building construction, more especially of engineering works, including design of bridges and steel structural work, calculation of stresses and preparation of diagrams. They must have had experience in a chartered civil engineer's office and be able to take out quantities and prepare estimates.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/5297.

WANTED.—Mechanical Engineer for European Engineering Works in India, about 30 years of age and with B.Sc. degree. Applicants must have special knowledge of heavy machine shop production methods coupled with business, office routine and drawing office experience. Experience in the production of railway points and crossings an advantage. Good salary, with provident fund, free passages and generous leave. Apply, by letter, with copies of testimonials, stating age and whether married or single, to: "SWITCH," c/o ABBOTTS, 32, Eastcheap, London, E.C.3.

RAILWAY TRUCK TRAVERSER for disposal at low price for quick disposal. Electrically operated, made by Cowan Sheldon & Co. Ltd. Capacity: Traversing 25 tons at 165 ft. per min. Hauling 25 tons at 165 ft. per min. Take up to 27 ft. wheelbase; 38 ft. over ramps. Write for further particulars and drawing or appointment to inspect. Equal to new, not having been used.—JAMES BROOKES (SMETHWICK) LTD., Lewisham Road, Smethwick. Tel.: Smethwick 0113.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

STAFF AND LABOUR MATTERS

Wage Claims

The wage claims of the three railway trade unions which have been the subject of negotiation with the four main line railway companies during the past few weeks, came before the Railway Staff National Council on June 24. No agreement was reached by the Council, and the following official statement of the claims was issued:—

BY THE NATIONAL UNION OF RAILWAYMEN, THE ASSOCIATED SOCIETY OF LOCOMOTIVE ENGINEERS AND FIREMEN AND THE RAILWAY CLERKS' ASSOCIATION

(1) The termination of the deduction of one-and-a-quarter per cent. from all earnings.

BY THE NATIONAL UNION OF RAILWAYMEN AND THE ASSOCIATED SOCIETY OF LOCOMOTIVE ENGINEERS AND FIREMEN

(2) The restoration of the standard rates of payment for night duty, night overtime and Sunday duty.

BY THE NATIONAL UNION OF RAILWAYMEN ONLY

(3) That the minimum rate of wages payable to any adult shall be not less than 50s. per week.

BY THE ASSOCIATED SOCIETY OF LOCOMOTIVE ENGINEERS AND FIREMEN ONLY

(4) After twelve months' service two week's holiday—twelve weekdays—with full pay to be given, annually.

(5) Cancellation of the provision for an extension of rosters, where economy will accrue, up to nine hours a day.

(6) A guaranteed day for each time of signing on duty on Sundays.

BY THE RAILWAY CLERKS' ASSOCIATION ONLY

(7) Special increases in pay for those for whom promotion is not available.

(8) Reduction of hours of duty to 36 per week.

(9) Extra payment for time worked between 6.0 p.m. and 6.0 a.m.

(10) Time off in lieu of work on Bank and Public Holidays.

The claims were fully considered by the National Council but no agreement was reached.

As the claims are of the type which can properly be regarded as of "major importance"—to quote the words used in the agreement as to machinery of negotiation—they will now pass forward to the final stage in the machinery, which is the Railway Staff National Tribunal, consisting of three independent persons.

The Chairman is Sir Arthur Salter, K.C.B., M.P., who presided over the tribunal's first proceedings in July last year. On that occasion and again in December he displayed a real understanding and a keen appreciation of the subtleties and difficulties inherent in railway wage problems. One of the other two independent members of the tribunal is appointed by the railway trade unions, and the other by the railway companies; and the tribunal will be assisted by six assessors, three being appointed by each side. The function of the assessors is to advise upon such matters as may be required of them by the tribunal, but it is an important feature of the procedure that the assessors do not sign the Decision.

The cases of the unions will be presented by the General Secretary of each union, and Mr. Kenelm Kerr, the Chairman of the Railways Staff Conference, is expected to be the companies' advocate. The tribunal will hear the claims during the present month, and their findings will no doubt be issued at the end of the month or early in August.

Railway Shopmen: Industrial Court Decision No. 1,677

Industrial Court Decision No. 1,677, dated June 22, deals with a claim submitted by the National Union of Railwaymen on behalf of a Grade IV Painter employed by the Southern Railway Company in the Engineer's Department at Waterloo, for regrading as Painter, Grade III.

Clause 5 of the Decision records that "the Court have given careful consideration to the evidence and submissions of the parties and in particular to the definitions of Grade III and Grade IV Painters contained in Award No. 728, and to the formula subsequently agreed upon between the parties as to the kind of work which a Grade IV Painter would be expected to undertake. They are of the view that the class of work upon which the man concerned in the present reference is engaged is proper to be regarded as Building Work and that having regard to the nature of the jobs he is in general called upon to perform he is entitled to be graded as a Grade III Painter. The Court decide accordingly."

Irish Railway Wages

At a meeting in Dublin last week the Irish Railway Wages Board decided that the existing deduction of five per cent. from the basic rates paid to employees of the Great Southern Railways should be reduced to two-and-a-half per cent., with effect as from January last.

Holidays with Pay

The Government Committee which is considering the question of holidays with pay heard further evidence on June 22.

Lieutenant-Colonel F. Rayner, President of the Canal Association, said that the present time was a particularly unfortunate one to increase working costs in the canal industry. The pressure of competition in road transport had caused the railway companies to make extensive cuts in their rates on certain classes of traffic which constituted the bulk of the merchandise carried on the waterways.

Mr. John Ironmonger, Chairman of the National Association of Canal Carriers, said that the general opinion was that the holiday was unnecessary and not generally wanted.

COLLISION BETWEEN RIO DE JANEIRO SUBURBAN TRAINS.—A collision, attributed to fog, between two suburban trains occurred at Rio de Janeiro on June 24. Five persons are reported to have been killed and 119 injured.

Railway Share Market

Pending a settlement of the French financial situation, the stock and share markets have been inactive. The general trend was to lower levels, the improved tendency which developed earlier in the week not having been held. No very heavy selling was reported, and when demand improves, prices are generally expected to show satisfactory recovery.

Home railway stocks were relatively steady, aided by the hopes attaching to the decision regarding increased transport charges and the half-yearly dividend statements. The traffics were also a favourable influence. The £53,000 increase shown by the L.M.S.R. figures brought in buyers for the ordinary stock up to 33¾, while the 4 per cent. preference and 1923 preferences were subsequently reported to be in better demand around 87 and 77 respectively. Great Western was lowered sharply at one time, but recovered on the traffic gain of £36,000 for the past week, and on the reports of increasing activity in the Welsh coal trade. L.N.E.R. second preference was around 26 and less active, but the traffic increase of £38,000 shown by the return was up to expectation. Earlier in the week the preferred and deferred stocks were better, but subsequently their moderate improvement was lost. Southern deferred and preferred at 22 and 92 respectively are lower on balance. Both were reported to be more active later, it being pointed out that devaluation of the franc should stimulate tourist traffic. London Transport "C" was again lower. Debenture stocks were affected by the trend in British Government securities, and fractional losses were shown by L.N.E.R. 3 per cents. and 4 per cents., while L.M.S.R. 4 per cents. were also below the price ruling a week ago.

Argentine railway stocks were in much better demand earlier in the week, but best prices were not retained. Central Argentine, B.A. Gt. Southern and B.A. Western ordinary were firmer; as were the preference stocks, which offer favourable potential yields, assuming that market dividend estimates are realised. Argentine Great Western 4 per cent. debentures and B.A. Pacific consolidated debentures transferred at higher prices, and there was moderate improvement in Cordoba Central debentures. Elsewhere, San Paulo were better and Leopoldina debentures were done at improved prices. Disappointment with traffic figures and less hopeful views as to more immediate prospects, combined with the trend of Wall Street markets, resulted in sharp declines in American railroad stocks. Union Pacific, Southern, and Norfolk and Western were particularly weak. Canadian Pacific held up relatively well.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1936-37	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1936	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1936	Prices: Lowest 1936	Prices: June 30, 1937	Yield % (See Note)
South & Central America.	Antofagasta (Chili) & Bolivia	834	27.6.37	£ 13,600	+ £ 2,040	26	£ 427,230	£ 351,610	+ £ 75,620	Ord. Stk.	25	15¼	17	Nil
	Argentine North Eastern	753	26.6.37	10,372	+ 1,914	52	465,116	414,365	+ 50,751	„	12	2	10½	Nil
	Argentine Transandine	—	—	—	—	—	—	—	—	A. Deb.	54	45	85	411/16
	Bolivar	174	May, 1937	6,100	— 1,800	22	29,300	34,800	— 5,500	6 p.c. Deb.	9	5	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	16	11½	15½	3¼
	Buenos Ayres & Pacific	2,806	26.6.37	94,169	+ 35,142	52	5,011,644	4,372,423	+ 639,221	Ord. Stk.	17½	6	11	Nil
	Buenos Ayres Central	190	12.6.37	$167,400	+ $71,860	50	$7,077,900	$5,342,200	+ $1,735,700	Mt. Deb.	31½	11	29½	Nil
	Buenos Ayres Gt. Southern	5,084	26.6.37	118,424	+ 8,283	52	7,662,301	6,671,573	+ 990,728	Ord. Stk.	31¾	13¾	25½	Nil
	Buenos Ayres Western	1,930	26.6.37	47,208	+ 5,532	52	2,587,485	2,344,148	+ 243,337	„	29¾	11	23	Nil
	Central Argentine	3,700	26.6.37	134,885	+ 13,405	52	7,964,968	6,098,642	+ 1,866,326	„	32 32	8¾	25½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	21	4½	11½	Nil
	Cent. Uruguay of M. Video	273	19.6.37	12,089	+ 1,632	51	638,817	568,277	+ 70,540	Ord. Stk.	7¾	3	4	Nil
	Do. Eastern Extn.	311	19.6.37	3,492	+ 1,163	51	133,111	106,886	+ 26,225	—	—	—	—	—
	Do. Northern Extn.	185	19.6.37	2,449	+ 834	51	94,105	76,040	+ 18,065	—	—	—	—	—
	Do. Western Extn.	211	19.6.37	754	+ 17	51	48,606	44,245	+ 4,361	—	—	—	—	—
	Cordoba Central	1,218	26.6.37	$7,660	+ 2,370	52	1,674,930	1,462,620	+ 212,310	Ord. Inc.	5	1	4½	Nil
	Costa Rica	188	Apr., 1937	20,677	+ 5,633	43	192,328	142,473	+ 49,855	Stk.	36½	32	36	59/16
	Dorado	70	May, 1937	14,000	+ 400	22	76,400	65,700	+ 10,700	1 Mt. Db.	107	101½	104½	5¼
	Entre Rios	810	26.6.37	14,280	+ 2,598	52	672,825	559,042	+ 113,783	Ord. Stk.	17	6	12	Nil
	Great Western of Brazil	1,082	26.6.37	6,300	+ 200	26	191,500	206,900	— 15,400	Ord. Sh.	1/2	5/16	1/2	Nil
	International of Cl. Amer.	794	Apr., 1937	$563,617	+ $46,024	17	$2,195,243	$2,080,641	+ $114,602	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1/2	–/6	1/2	Nil
	La Guaira & Caracas	22½	May, 1937	5,255	— 250	22	28,335	27,880	+ 5,455	Stk.	9	3	7½	Nil
	Leopoldina	1,918	26.6.37	21,652	+ 4,013	26	566,679	431,212	+ 135,467	Ord. Stk.	10½	3½	5	Nil
	Mexican	483	21.6.37	$360,500	+ $115,100	25	$7,641,200	$6,498,700	+ $1,142,500	„	1¼	1/4	1/2	Nil
	Midland of Uruguay	319	May, 1937	8,592	+ 2,259	48	96,366	78,833	+ 17,533	„	1½	1/8	1/2	Nil
	Nitrate	384	15.6.37	5,714	+ 3,746	24	80,419	63,702	+ 16,717	Ord. Sh.	63/6	41/9	2⅝	Nil
	Paraguay Central	274	26.6.37	$4,052,000	+ $831,000	52	$159,648,000	$126,600,000	+ $33,048,000	Pr. Li. Stk.	85	71	80½	77/16
	Peruvian Corporation	1,059	May, 1937	80,256	+ 510	48	903,145	866,369	+ 41,776	Pref.	15	9	11	Nil
	Salvador	100	19.6.37	¢16,100	+ ¢5,700	51	¢1,218,108	¢970,736	+ ¢247,372	Pr. Li.Db.	18	16	22½	Nil
	San Paulo	153½	20.6.37	39,875	+ 6,270	25	802,484	723,452	+ 79,032	Ord. Stk.	86	46½	89½	511/16
	Taltal	164	May, 1937	3,310	+ 300	48	37,920	38,505	— 585	Ord. Sh.	11 32	14/–	11⅛	8⅞
	United of Havana	1,353	26.6.37	18,186	+ 1,814	52	1,390,769	1,224,522	+ 166,247	Ord. Stk.	3¼	1	3	Nil
	Uruguay Northern	73	May, 1937	725	— 87	48	10,860	9,139	+ 1,721	Deb. Stk.	5	3	9	Nil
Canada	Canadian National	23,773	21.6.37	751,396	+ 64,856	25	17,988,026	16,175,140	+ 1,812,886	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	—4 p.c.	Perp. Dbs.	76	51	69	515/16
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	104¾	99¾	98½	411/16
	Canadian Pacific	17,228	21.6.37	520,800	+ 22,200	25	12,631,400	11,688,800	+ 942,600	Ord. Stk.	16¾	10 15/16	12½	Nil
India,†	Assam Bengal	1,329	31.5.37	38,092	+ 2,662	9	216,660	205,848	+ 10,812	Ord. Stk.	87¾	82¼	74½	4
	Barsi Light	202	31.5.37	3,082	— 398	9	22,312	22,027	+ 285	Ord. Sh.	77½	65½	47	10 5/8
	Bengal & North Western	2,111	10.6.37	83,211	+ 11,012	10	643,910	608,745	+ 35,165	Ord. Stk.	319	292 5/8	301§	6
	Bengal Dooars & Extension	161	10.6.37	2,967	— 2	10	22,373	22,675	— 302	„	127½	118	97½	5 5/8
	Bengal-Nagpur	3,265	10.6.37	187,575	+ 9,738	10	1,442,500	1,315,843	+ 126,657	„	104	100¼	90½	47/16
	Bombay, Baroda & Cl. India	3,072	20.6.37	260,550	+ 27,825	11	2,253,975	2,106,600	+ 147,375	„	114	110½	110 1/2§	5 7/16
	Madras & Southern Mahratta	3,229	10.6.37	157,275	+ 2,230	10	1,197,975	1,189,973	+ 8,002	„	116½	108½	107½	7 7/16
	Rohilkund & Kumaon	572	10.6.37	15,478	— 533	10	127,406	131,446	— 4,040	„	311	286	307	5 7/8
	South Indian	2,531½	31.5.37	127,155	+ 3,481	9	709,317	706,330	+ 2,987	„	107½	102 5/16	100½	5½
Various	Beira-Umtali	204	Apr., 1937	82,745	+ 22,033	31	501,230	442,973	+ 58,257	—	—	—	—	—
	Egyptian Delta	620	10.6.37	6,234	+ 616	10	43,418	39,590	+ 3,828	Prf. Sh.	21/4	1⅜	1 1/2	Nil
	Great Southern of Spain	—	—	—	—	—	—	—	—	Inc. Deb.	1 1/2	1/8	3½	Nil
	Kenya & Uganda	1,625	May, 1937	216,935	— 20,539	22	1,334,126	1,229,899	+ 104,227	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	50½	37	45	7¾
	Midland of W. Australia	277	May, 1937	11,590	— 359	48	144,239	149,411	— 5,172	Inc. Deb.	97	93½	95	4 5/16
	Nigerian	1,905	8.5.37	52,844	+ 19,099	6	367,064	191,046	+ 176,018	—	—	—	—	—
	Rhodesia	2,451	Apr., 1937	410,583	+ 130,476	31	2,520,488	2,006,253	+ 514,235	4 p.c. Db.	107	103½	107½	3¾
	South Africa	13,263	5.6.37	612,670	+ 56,303	10	5,806,034	5,390,779	+ 415,255	—	—	—	—	—
	Victoria	4,728	Nov., 1936	868,968	+ 45,953	21	3,995,540	3,958,297	+ 36,243	—	—	—	—	—
	Zafra & Huelva	112	Apr., 1937	13,304	+ 4,300	17	57,316	29,754	+ 17,562	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16.
† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador and Paraguay Central receipts are in currency.
The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value.